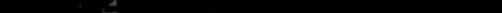


AT THESE
PRICES, WHO'S
THE PERFECT
HOST?



DELL

PowerEdge
2450





Are you confident that your current Web-hosting solution can handle your business growth? Don't pay to be squeezed on to a cramped shared Web-hosting server. Team up with Dell,™ an E-Commerce leader. With dedicated Web-hosting services starting at only \$199 per month, we'll base your network on its own dedicated Dell PowerEdge™ or PowerApp™ server, featuring Intel® Pentium® III processors, which is monitored 24x7. It's scalable and flexible enough to reconfigure as your business needs grow. In other words, perfect.

DELL HOSTING SOLUTIONS:

DEDICATED WEB-HOSTING SOLUTION

DellHost™ D-2950

- Dell® PowerApp™ 100 Server Appliance
- Intel® Pentium® III Processor at 800MHz
- 64MB SDRAM, 1X 9GB, 7.2K SCSI HD
- 2X 10/100 Embedded NICs
- Red Hat® Linux™ 6.2 OS
- 24x7 Monitoring & Monthly Transfer (Included)
- NetObjects Site Deployment Software - No Added Charge
- 1-Yr VerticalNet® Storefront to Qualified Customers (\$940 Value)

\$199/mo.

PLUS ONE-TIME SETUP FEE

* Add Traffic Analysis and Tools. Starting at \$9.95/mo.

DEDICATED WEB-HOSTING SOLUTION

DellHost™ D-3900

- Dell® PowerApp™ 1988 Server Appliance
- Intel® Pentium® III Processor at 850MHz with 512K Cache
- 64MB SDRAM, 2X 9GB, 7.2K SCSI HD
- 2X 10/100 Embedded NICs
- Red Hat® Linux™ 6.2 OS
- 24x7 Monitoring & 1GB Monthly Transfer (Included)
- 1-Yr VerticalNet® Storefront to Qualified Customers (\$940 Value)

\$299/mo.

PLUS ONE-TIME SETUP FEE

* Add Weekly Back-up for \$75/mo. plus \$150 Setup Fee

* Add Site Tools and Analytics. Starting at \$9.95/mo.

DEDICATED WEB-HOSTING SOLUTION

DellHost™ D-3200

- Dell® PowerEdge™ 2450 Server
- 2X Intel® Pentium® III Processors at 833MHz with 256K Cache
- 512MB SDRAM, 2X 10GB, 10K SCSI HD
- 2X 10/100 Embedded NICs
- Red Hat® Linux™ 6.2 OS; Single-channel RAID1
- Dedicated 21GB Monthly Transfer (Included)
- 1-Yr VerticalNet® Storefront to Qualified Customers (\$940 Value)
- 99.9% Uptime Guarantee™; 7x24 Phone Tech Support

\$549/mo.

PLUS ONE-TIME SETUP FEE

* Add Weekly Back-up for \$75/mo. plus \$150 Setup Fee

WEBSITE STARTER KIT

One-Stop Shop for Your Website Needs

- 1-Yr Domain Name Registration from Network Solutions (\$25 Value)
- Professional Designed 3-Page Website from Dell Design Services (\$200 Value)
- 1 Year of Shared Hosting (\$25 Value)
- 100MB Storage
- 1GB Transfer Rate

\$399 for kit

PLUS ONE-TIME SETUP FEE

DELL

GET EXACTLY WHAT YOUR BUSINESS IS LOOKING FOR

888.906.3355

WWW.DELLHOST.COM

Call M-F 7a-9p Sat 10a-5p CT Canada 600-639-0169 Mexico 001-877-209-3275 CSA Contract #G5-25F-4010

Power specifications are for the Dell PowerApp 100. Dell PowerApp 1988 and 2450 servers include a 1000MHz Pentium III processor, 64MB SDRAM, 1X 9GB 7.2K SCSI HD, 2X 10/100 NICs, Red Hat Linux 6.2 OS, 24x7 Monitoring, and 1GB Monthly Transfer. Dell PowerApp 1988 and 2450 servers are trademarks of Dell Computer Corporation. Most of the Intel Inside logo and Pentium are registered trademarks of Intel Corporation. MS, Microsoft, Windows, XP and Windows XP are registered trademarks of Microsoft Corporation. Dell cannot be held responsible for errors in typography or photography. © 2001 Dell Computer Corporation. All rights reserved.



∞ Being the best in your business, you've already got enough excitement without surprises from your information systems. So Fujitsu Technology Solutions has designed robust open systems solutions that you can trust. Our enterprise-class PRIMEPOWER, Solaris™ SPARC™-compliant, Web-enabling servers and storage systems deliver industry-leading flexibility, resilience, reliability, and availability. As well as the peace of mind

TRUST

TO COUNT ON

THE WAY IT'S MEANT TO BE

that comes from a low total cost of ownership. Our data center perspective shows in the quality of our products and solutions. With innovative architecture, hot-swap components, and built-in SANs, you'll feel totally at ease. Our powerful servers and storage systems are the engine that can power today's e-business boom. Count on it. Enjoy the advantages. And learn to trust.

FUJITSU

THE POSSIBILITIES ARE INFINITE

FUJITSU TECHNOLOGY SOLUTIONS
BURLINGAME, CA 1-877-885-2844
www.fujitsu-technology.com

PRIMEPOWER is a registered trademark of Fujitsu Limited. Solaris is a trademark of Sun Microsystems, Inc. SPARC is a registered trademark of SPARC International, Inc. Products featuring the SPARC trademark are based on Architecture developed by Sun Microsystems, Inc. © 2002 Fujitsu Technology Solutions, Inc. All rights reserved.



LESSONS FROM THE LAB

David Cooper, the CIO of Lawrence Livermore National Lab, runs the hottest information system on the planet. But his insights into IT are down to earth and useful to any manager. Page 56

SLOW AND STEADY COULD WIN THE RACE

For years, the giants of corporate America were dismissed as too-slow to react for the New Economy.

But now, as the quicker, nimbler start-ups begin to wear themselves out, the giants have risen again and are picking up the pace. Page 42



COMPUTERWORLD THIS WEEK

FEBRUARY 12, 2001

NEWS

6

6 AMADEUS PLANS to post train schedules beside information about airfare between cities. What does this mean for the travel industry?

6 PEGASUS REPLACES its ASCII file system with a new one based on XML, which could have a big impact on travel-related businesses.

7 A NEW STANDARD intended to facilitate B2B exchange of consumer data faces big problems with the FTC — and with users.

6 B2B MARKET SHIFTS as vendors focus on suppliers who now have to find ways of handling a glut of buyers.

10 THE HART-RUDMAN Commission recommends the formation of an agency to oversee national cyberdefenses.

12 ORACLE ANNOUNCES the latest, revved up version of its Oracle9iAS app server, touting enhancements in business intelligence and wireless technologies.

14 FLEETBOSTON PLANS to merge its online broker, Suretrade, into its Quick & Reilly unit, joining the movement away from Net pure-plays in the securities industry.

MONITOR
Editorial Letters 26, 27
How to Contact CW 72
Shark Tank 74
Company Index 72

BUSINESS

31

32 FTC APPROVES self-regulatory guidelines for protecting children's privacy online.

32 IT LAWYER OFFERS advice for companies looking to sue vendors for failed technology projects.

33 SWEET CANDIES IT staffers work hard to handle the Valentine's Day rush. Find out more about life at the candy maker.

36 IT PROS DON'T HAVE TO live like nomads if they work for companies that give them room to grow.

40 EXPERTS OFFER ADVICE on how much to pay in bonuses to members of IT teams.

44 U.S. FIRMS RUSH to set up shop abroad, but they should slow down and weigh the pros and cons.

45 E-MARKETPLACES CUT costs, time and waste for firms, but they also pose challenges.

OPINIONS

26 MARK HALL says Microsoft is trying to solve its operating system proliferation problem through Active Directory. But users aren't buying it.

26 PIMM FOX writes that Ariba's acquisition of Agile Software may be the first link in a chain of events that will push business-to-business consolidation.

TECHNOLOGY

49

50 HACK OF THE MONTH
50 YOU CAN AVOID sticky problems related to BIND, the "glue" of the Web. Just follow Deborah Radcliff's advice.

52 SECURITY JOURNAL
52 JUDE SAYS GOODBYE and offers parting advice about disaster planning.

54 HARD ON
54 UTILITY SUITES CAN prevent the blue screen of death when used properly, says our reviewer.

55 FUTURE WATCH
55 PEN AND PAPER MOVE into the future with Anoto's new system for recording and transmitting information.

56 QUICKSTUDY
60 ARTIFICIAL NEURAL networks are computers organized like your brain, and they can solve problems other computers can't.

61 EMERGING COMPANIES
61 FIVORN PIONEERS supply-chain workflow software for manufacturers.

ONLINE



Diversity doesn't just mean equality of gender or a range of ethnic groups. Gartner Group's Barbara Beasley writes that many companies' biggest diversity challenge is age.

www.computerworld.com/careers

In the latest installment of the *E-Commerce Chronicle*, Computerworld's intrepid shopper tries to buy components for an ad-hoc wireless network. It wasn't easy.

www.computerworld.com/ecommerce

For the latest in security news, opinions, analysis and interactive discussions, head to the **Security Watch Community**.

www.computerworld.com/security

33 PETER G. W. KEEN claims storage hardware is becoming the single most important element of e-business innovation.

46 JOE AUER says there's a right way for IT organizations to create shortlists of potential vendors.

74 FRANK HAYES offers two words of advice for Egheads about its storage of old customer data: Dump it.

AT DEADLINE

Administrators Warn Of Viral Valentines

E-mail administrators have advised employees to send valentines the old-fashioned way - by mail. That's because of a malicious Italian-language variant of the "I Love You" virus that's making the rounds, as well as the risk of overloaded networks due to the proliferation of electronic greetings this year.

Administrators are advising users not to open attachments, even from friends and relatives, unless it's known what the attachments contain.

Congress May Extend Net Tax Moratorium

The soon-to-expire Internet tax moratorium, which prohibits any new or discriminatory taxes on e-commerce transactions, would be extended five years, to 2006, under bills introduced in Congress last week by Sen. Ron Wyden (D-Ore.) and Rep. Christopher Cox (R-Calif.). The current three-year moratorium expires in October.

Amazon to Close Office in Netherlands

Amazon.com Inc. said it plans to close a customer service center in the Netherlands and fold that site's operations into other facilities in the U.K. and Germany. The European consolidation follows the Seattle-based online retailer's announcement late last month of planned layoffs and facility closings in the U.S.

Corrections

An article titled "Pick Your Security Officer's Brain" in our Jan. 117 Agents supplement incorrectly stated that Network Flight Recorder is a firewall. It's an intrusion-detection system.

An article on Page 1 of our Feb. 5 issue contained a misspelling of an application developed by Dresden Kleinwort Wasserstein. The correct spelling is Operaditor, and the site where it's available is www.operaditor.org.

Travel Network Unifies Railway, Airline Data

Overcomes format challenges to provide single view of fares, schedules for agents

BY MICHAEL MEEHAN

AMADEUS GLOBAL Travel Distribution SA last week became the first to offer a computerized reservations system that lists train schedules alongside airline data, a process previously complicated by the balkanized data formats that different railroads have implemented.

Madrid-based Amadeus said the change should make it easier for railways to compete with airlines for travel bookings, especially for high-speed trains that can make trips in less than three hours. Such trains have become commonplace in Europe. U.K.-based BritRail has already signed up to make its train schedules and ticket availability information available to travel agents in the U.S., Canada and other countries. Amadeus officials said they expect to add the Norwegian and Swedish railroads in the near future.

Amtrak, the Washington-based U.S. railway, is also talking with Amadeus about using the technology.

Extending Their Reach

But putting those capabilities in place isn't a simple matter. Tim Wesley, rail products manager at Amadeus, said railways haven't followed in the tracks of airlines, which long ago realized the benefits of creating centralized reservations systems with uniform methods of storing passenger names and other data.

"We're having to shoehorn some of the rail functionality into an airline environment to make this work," Wesley said.

Amtrak is working to upgrade its internal systems with XML support and other technology that will let the railway's schedule and fare information be viewable by the nearly 50,000 travel agencies that use the Amadeus system, said Alan Orschon, director of

industry alliances at Amtrak. "We're looking to widen the reach we have across many [ticket] distribution channels," he said.

Much of the BritRail work is being done by Access Rail Inc. The Montreal-based company takes railway information and uses city codes assigned by the International Air Transport Association to convert the data into listings that Amadeus and its competitors in the reservations business can handle.

Denis Grenier, vice president of business development at Access Rail, said railways should be able to reach more travelers by hitching up with airline-created reservations systems like Amadeus.

"The driving force is the railways realizing they cannot cater to the demand that comes from travel agents if they continue to use only their proprietary systems," he said.

Access Rail has also signed a deal to provide rail information to Amadeus' rival Sabre Holdings Corp., though Fort Worth, Texas-based Sabre has yet to announce combined air/rail listings. Grenier said he hopes

to have similar agreements in place by this fall with Worldspan LP in Atlanta and Galileo International Inc. in Rosemont, Ill., which operate two other big reservations systems.

For Amadeus and its rivals, meanwhile, increasing the railway listings they carry is seen as one way to make their systems more appealing as more travelers use online travel agencies to book trips directly.

The centralized reservations systems "are opening up their eyes to things they never would have before," said Krista Pappas, an analyst at Waltham, Mass.-based Gomez Advisors Inc. ▀

Hotel Network Moves to XML, Will Log Off ASCII

Would miss Web opportunities without switch

BY MICHAEL MEEHAN

Hotel distribution network Pegasus Solutions Inc. is nearing completion of an XML-based network designed to replace the technology that has formed the core of its business: ASCII.

The Dallas-based company currently provides links to more than 38,000 hotels using an 11-year-old system. The benefits of the XML-based network include easier connections for hotels and travel agencies, the removal of a significant barrier for Web sites that wish to join the network, and the ability to provide much richer data about individual hotel properties, according to the company.

Steve Reynolds, Pegasus' senior vice president for IT, said the company's ASCII format created a lot of busywork for his department. "This is the prevailing technology," Reynolds said. "So that's where we aim to be." Orbitz LLC, a Chicago-based airline-owned travel Web site due to launch in June, will be using Pegasus for hotel reservations. Roger Liew, Orbitz's director of software engineering, said XML will be a welcome addition.

Liew said Orbitz must tinker with its internal applications whenever Pegasus adds attrib-

utes in its current format.

"Accessing it through XML should make it easier for us to use new content as they give it to us," he said.

Orbitz's rival travel Web site, Expedia Inc. in Bellevue, Wash., also prised Pegasus for its XML conversion.

"In general, the hotel industry is ripe for standardization," said Bob Hohman, Expedia's business unit manager for lodging. He added that hotels have long suffered from having a lot of information to give while lacking the tools to present that information.

Andrew Hastings, a hotel analyst at Gomez Advisors Inc. in Waltham, Mass., said the hotel industry is, by nature, spread out geographically and technologically. He said he believes XML "is becoming the default standard of the industry that's going to allow [hotels] to become much more nimble and reach much wider audiences."

He praised Pegasus for taking the initiative to convert its core technology, adding that XML will soon be a "must-have" for distribution networks like Pegasus'.

Reynolds said he expects the XML system to enter the beta-testing phase before June. ▀



REYNOLDS: XML
"In the prevailing technology, So that's where we aim to be."

Budding B2B Standard Faces Big Problems

Spec for sharing consumer data has no users, faces FTC review

BY PATRICK THIBODEAU

A data standard created to act as a high-tech lubricant for the exchange of customer information is facing problems, including a just-announced review by the Federal Trade Commission (FTC) and, perhaps more importantly, a lack of big end-user acceptance so far.

The Customer Profile Exchange standard, or CPEXchange, offers companies a way around numerous data types and the custom-designed interfaces needed to translate them. If the standard doesn't take off, the process may not improve, proponents say.

"At this point, we do not exchanges that are disastrous. Everybody speaks a different

language, everybody has ways of pushing information — from text files to XML. It is very, very nasty," said Henri Assely, chief technology officer at Los Angeles-based BioRate.com, a company that provides customer-generated ratings of e-commerce sites and one of 70 companies that is a member of CPEXchange network.

No Takers Yet

The first version of CPEXchange was published in October, but so far, no company has adopted it. Most of its backers are vendors, with IBM being the largest. Only a few major end-user companies were involved in the standard's development, and two of those com-

panies have apparently distanced themselves from this effort: First Union Corp. in Charlotte, N.C., and Charles Schwab & Co. in San Francisco. Both companies say they have no plans to implement the standard.

Assely said he believes the standard can solve the data exchange problems, but the 127-page specification is "so complicated that it's very, very difficult for companies to make heads or tails of it."

He said he doesn't know if the standard will win adoption. "Things that fly are simple things," Assely noted.

Winning end-user support for a new standard can be difficult in any case. But how will

this standard fare if it's put under the spotlight of the FTC and Congress?

The FTC will hold a workshop March 13, prompted in part by a letter from Sen. Richard C. Shelby (R-Ala.). Shelby claims that the technology gives companies a "vastly improved ability to share and exploit personal information in pursuit of profit."

Protecting Private Data

That very public attention on the standard could be keeping end users away.

"It makes it more difficult to win adoption, no question. On the other hand, it also raises the issue on people's radar," said Matthew Doering, CTO at QueryObject Systems Corp. in Roslyn Heights, N.Y., a developer of business intelligence software and a member of CPEXchange network.

Moreover, the marketing of the standard has just begun.

CPEXchange

What It Is: A new XML-based open standard for sharing consumer information that allows companies to attach a consumer's privacy preferences. The specifications are at www.cpeexchange.org.

What It Means for IT: An unenvied, it could make data interchanges easier.

What It Needs to Succeed: End user buyers.

To succeed, the standard will need to be adopted by a big end user, said Doug Laney, vice president of application delivery strategy at Meta Group Inc. in Stamford, Conn. He's cautiously optimistic that that will happen.

"I know that standards defined by committee that aren't developed at a grassroots level typically don't fly without some heavy, heavy marketing or visible support from a large organization," said Laney.

Lack of Marketing

But obvious potential early adopters — the members of the CPEXchange — have clearly stepped back. A spokesman for Charles Schwab said it was just a "fluke" that the firm was listed as a member of the CPEXchange; the company had joined to pick up some XML tips. A First Union spokeswoman downplayed her firm's involvement. A third major end user listed on the network, BarnesandNoble.com Inc., didn't respond by press time.

A major selling point for proponents of the CPEXchange is the standard's ability to incorporate an individual's privacy preferences. For instance, a company that needs to transmit consumer data to a supplier could attach privacy restrictions that set limits on the use of the data, such as third-party sharing.

"The main purpose of the standard is to provide a safe way to ethically pass consumer profile information between companies," said Doering.

But privacy advocates worry that companies can "just ignore" the permission features of the standard "and use the vastly greater facility for exchanging personal information," said Jason Catlett, president of Junktasters Corp., a privacy advocacy firm in Green Brook, N.J.

Identity Thefts Skyrocket, but Less Than 1% Occur Online

FTC says it will remain a watchdog; Davos hack incident shows threat is real

BY DAN VERTON

The number of identity thefts in the U.S. has skyrocketed during the past 15 months, but contrary to public perception, very few of those crimes are happening online, the Federal Trade Commission (FTC) told a presidential advisory council last week.

"Identity theft is expanding and increasing every day," said Jodie Bernstein, director of the FTC's Bureau of Consumer Protection, during the first meeting of the President's Information Technology Advisory Committee. She said 2,000 calls per week poured into the FTC identity theft hotline last month alone. But less than 1% of all reported cases to date can be linked to the Internet, she said. The two most common causes are lost wallets or purses, and mail theft.

"We don't see as many Internet solicitations, but we are watching that," said Joanna Crase, program manager for the FTC's identity theft program. She added, however, that there is evidence that Internet-related thefts, particularly

e-mail schemes, are increasing. When asked by a council member if the FTC thinks Internet-related cases of identity theft are an unreported problem, Bernstein said it's possible but not likely.

"Our estimate would be very low — maybe 20%," she said.

Hacker Incidents Probed

Council member Larry Smar, strategic adviser at the University of California's School of Engineering in San Diego, suggested that the FTC consider a hacker incident that happened just last week as an example of the growing threat of identity theft online.

Personal information and credit card numbers belonging to high-profile political and business leaders who attended the World Economic Forum (WEF) in Davos, Switzerland, were stolen off a WEF server. Microsoft Corp. Chairman Bill Gates and former president Bill Clinton were among the possible victims.

Ironically, that break-in made personal victims out of many of the business leaders who for

The Face of Identity Theft

VICTIM PROFILE

Age: Average age: 42
Most often lives in a large population center in states such as California, New York, Nevada, Arizona or Florida
40% have no relationship with the thief
Typically doesn't notice the crime for an average of 16 months

years have defended self-regulation of industry privacy controls. Many, including Gates, Dell Computer Corp. Chairman Michael Dell and others, have urged the government not to intervene by implementing more regulations regarding privacy and protection of personal information online.

Steven Kobrin, a professor of multinational management at The Wharton School at the University of Pennsylvania in Philadelphia, has attended the last seven WEF summits and was among the victims of the latest hacker incident.

According to Kobrin, many

Suppliers Rush to Simplify Supply-Chain Systems

Companies consolidate disparate platforms to keep up with e-commerce orders

BY MICHAEL NEWMAN

AS THE RANKS of e-commerce-enabled buyers grow daily, suppliers are now finding themselves scurrying to streamline and automate their supply chains.

One such supplier, Hitachi America Ltd., decided it could no longer juggle electronic data interchange, RosettaNet and XML orders on separate platforms to meet the needs of its buyers.

"We're basically a sales force," said John Gibb, director of business services at the Brisbane, Calif.-based firm's semiconductor division. "We have to respond to the customers' requests in this business. There's no saying no."

Framingham, Mass.-based Staples Inc. also found itself dealing with a growing number of buyers who preferred to use the latest procurement applications.

The office supplier's IT organization found itself "formatting for each customer who wanted a buyer-hosted catalog," said Anne-Marie Keane, vice president for business-to-business e-commerce at Staples. "Over time, that's just not a scalable solution."

Keeping It Simple

For both companies, the answer was consolidation and simplification.

Hitachi booted down its three business-to-business platforms into a single environment. Gibb estimated that the yearlong effort will save his company more than \$10,000 per month. Hitachi also tapped Contivo Inc. in Mountain View, Calif., to help it map document files with new customers.

"Every new sale requires more mapping, and it just eats up our resources," Gibb said. "It can get tedious, but it's got to be done."

For its part, Staples pur-

chased business-to-business content-management software from Trigo Technologies Inc. in Brisbane, Calif., to replace its homegrown user interfaces.

"It's a natural evolution for us," Keane said. "We've been working toward this [for] the past 18 months, and we were looking for vendors who had products that would allow us to push more content out to a larger number of customers."

Staples and Hitachi aren't alone. These types of supply-side constraints are to be expected in an industry as immature as business-to-business e-commerce space, according to Karen Peterson, an analyst at Stamford, Conn.-based Gartner Group Inc.

"It's no surprise they've got problems," she said. "It's just that the products out there to date have lacked the functionality to solve the problems."

But that's expected to change soon. Mo Treadaway, an e-business partner at PriceWaterhouseCoopers in New York, estimated that supplier-

based business-to-business e-commerce software will be the key focus in the vendor community during the next six months.

Lack of Standardization

"The lack of standardization in the supplier products has been holding back the liquidity of the market," Treadaway said, noting that the growth area for software vendors lies between the business-to-business transaction and the supplier's enterprise resource planning systems.

Gibb said he agrees. "We all

want one well we can dip into

New Layer of Complexity

Hitachi America used some of these steps to rebuild its B2B supply-chain systems:

- Combined three separate platforms — EDI, RosettaNet and XML protocols — into one.

- Built links between its B2B network and company enterprise resource planning systems.

- Established uniform e-commerce trading guidelines for all Hitachi divisions.

to get information," he said. "We know we can't dictate terms like our customers [can], so we're looking for solutions to encompass everything."

Weak Link: Small Suppliers Loath to Spend On Business Partner Connectivity

Seminar: Bigger firms should help fill gap

BY MARC L. BONHOMI
NEW YORK

Most executives acknowledge that it makes business sense to fully connect and automate their organizations' supply chains.

It's getting there that's the hard part.

"In an ideal world, I buy into it," said Ted Jackson, CEO at Sport Chalet Inc., a Los Angeles-based retailer that sells sporting goods online and at 23 stores in Southern California. "In practice, it gets difficult."

Jackson was one of several IT executives attending an educational seminar last week who sounded off on the challenge of working with small to midsize suppliers that haven't quite grasped the need to automate their supply-chain activities. The event was sponsored by St. Paul, Minn.-based SPS Commerce Inc., a supply-chain connectivity services provider.

The need to create a fully connected supply chain with end-to-end visibility has been

ever, observers said. Patricia Seybold, president of Patricia Seybold Group in Boston, told conference attendees that customers doing business via the Web want to be able to do things such as check the delivery status of products they have ordered online.

Supply chains, she said, are "beginning to collapse around the customer."

Automated supply chains can also shore up the bottom line. Advanced electronic ordering systems can slash inventory and operating costs and improve a company's earnings by 8% to 12% annually, according to a Seybold report based on seven companies using SPS's services.

This kind of end-to-end connectivity can increase inventory turns and slash supply-chain costs by improving efficiencies turns, Seybold claimed.

The problem is, a supply chain is only as strong as its weakest link, and small suppliers have demonstrated little interest in investing in the nec-

essary IT systems, training and business process changes that are needed to fully connect with their core business partners, said Larry Smeltzer, a professor of supply-chain management at Arizona State University in Tempe.

"We don't have large-to-small-company connectivity taking place," Smeltzer said. With so many small companies reluctant to spend money to implement electronic data interchange (EDI) or Web-based transaction links, he added, it's important for larger business partners to do what they can to share resources and simplify the connection process.

Moreover, noted Jackson, when a behemoth like The Boeing Co. in Seattle or Dearborn, Mich.-based Ford Motor Co. signs on a supplier, the supplier is married to the larger company's data-formating methods, making it harder for the smaller supplier to connect with other companies.

And divisions of large companies can also face financial

constraints. "We're a small to medium-size enterprise, even though we're owned by Viacom, a billion-dollar company," said Charles Eigen, director of ordering process at Simon & Schuster Inc. in Riverdale, N.J.

Large companies face things such as fixed budget and system limitations and different priorities, and that limits the connectivity projects they can engage in.

Translation Required

Installing an EDI system at a small company requires a translator to convert data between different systems, said Gary Maney, an information systems manager at West Marine Inc., a Watsonville, Calif.-based boating supply retailer. That can make it "hell" to try to link in mom-and-pop suppliers so their data can be viewed by customers, he added.

In addition, some buyers and sellers may decide it's not worth it for them to get connected electronically, despite the low cost of entry via the Web. For instance, when Centaur Membership Services, a Trumbull, Conn.-based buying club, went live with SPS's services last September, the suppliers list dropped by 100. "We mutually agreed that it [the SPS connection project] was not worth the effort due to the low volume of transactions," said Evan Gutmann, director of logistics. □



JACKSON: Data formats make e-business harder for smaller firms.



Trend Micro

ScanMail for Lotus Notes

Simple addition stops viruses from multiplying.

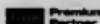
How do you protect your Lotus Notes environment against viruses, when you've got so many different platforms to cover? Simple. ScanMail® for Lotus Notes.

ScanMail makes life very difficult for viruses, blocking them at the server level before they can spread.

ScanMail makes life easy for administrators, allowing you to manage your heterogeneous Notes environment through a single convenient console. ScanMail for Lotus Notes supports more platforms than any other Notes anti-virus solution: NT, Solaris, AIX, AS/400, and S/390.

You can integrate ScanMail with other Trend Micro products to provide a single-console content security solution for your entire enterprise. What could be simpler?

See why more groupware administrators trust ScanMail than any other anti-virus product. Get a free evaluation CD—and a free copy of our white paper, "Safe Computing Practices"—at www.trendmicro.com/35 (or call 1-800-228-5651).



BRIEFS

IM Group Working On Interoperability

In the absence of a standard protocol for instant messaging (IM), a coalition of service providers last week said it's in the final stages of testing interoperability specifications that would allow users of the various IM services to chat with one another. **IM4Allied** published the specifications in August and has been testing them since then, said Estelle Montroni, spokeswoman for the group of IM providers. Members of IM4Allied include AT&T Corp., Excite@Home, Microsoft Corp.'s MSN Network, QDig Inc., Phone.com Inc., Prodigy Services Corp. and Yahoo Inc.

First Union Denies Reports of Major Cuts

Charlotte, N.C.-based First Union Corp. last week denied published reports that it plans to significantly reduce its IT spending and staff. A spokeswoman did confirm that the bank has reduced staff in some areas, but she said the majority of those workers will be able to find other jobs within the bank.

One targeted area is the IT division, which helps the bank's business divisions with technology strategy planning. The infrastructure and architecture group, which is responsible for activities that include tech support, may see some additional job cuts by the end of the first quarter of this year. "But they won't be significant," the spokeswoman said.

Patient Safety Initiative Announced

The Center for Healthcare Information Management (CHIM), a non-profit trade association composed of health care vendors and consultants, has announced a patient safety initiative at last week's Healthcare Information and Management Systems Society conference. Ann Arbor, Mich.-based CHIM said it will begin research by the second quarter of this year to see how technology can reduce medical errors. CHIM will have an independent advisory board that will verify any system's performance information that is submitted to it.

Congress to Weigh Web Defense Plan

Texas Republican plans to introduce bill that would reshape national cyberdefense

BY DAN VERTON

A REPORT that proposes sweeping changes in the way the government organizes its cyberdefense is gaining support on Capitol Hill. Lawmakers are preparing to introduce legislation this week based on the recommendations in the report, which was issued last month by the U.S. Commission on National Security.

Rep. Mac Thornberry (R-Tex.), a member of the House Armed Services Committee, plans to introduce a bill this week that would create the National Homeland Security Agency (NHSAs).

If approved, the NHSAs will use the Federal Emergency Management Agency (FEMA) as a building block and will possibly replace FEMA in the long run.

NHSAs would oversee government and private-sector efforts to protect the nation's critical infrastructure from both cyber and physical at-

tacks, as called for by the commission's report.

The goal is to create a virtual tripwire that can alert the national security community to significant cyberthreats without violating the privacy of U.S. citizens or compromising the proprietary data of private firms, which own and operate the bulk of the nation's critical infrastructure.

Not Everyone's Optimistic

However, sources close to the commission, headed by former Sens. Gary Hart and Warren B. Rudman, said they aren't optimistic that the report's recommendations will be turned into action anytime soon. They blame an arthritic federal bureaucracy burdened by Cold War-era policies, interagency funding rivalries and a Bush administration that is still trying to figure out what its priorities will be.

"I'm not optimistic at all," said a government source close to the commission. It's unfortunate, the source said, be-

cause the commission is offering "a neutral model that is not pro-industry and is not pro-law-enforcement."

The bill would also roll up a half-dozen agencies currently involved in cyberdefense into the new structure (see box).

Harris Miller, president of the Information Technology Association of America, an Arlington, Va.-based trade group

Still, not everyone is thrilled with the idea.

"I think the commission may have done a disservice to infrastructure protection by tying it to the unachievable goal of creating a new agency," said Steven Aftergood, an analyst at the Federation of American Scientists in Washington. "In the absence of an actual crisis, the existing national security bureaucracy is unlikely to permit the establishment of a major new competitor for authority and funds," he added.

But Thornberry is committed to ensuring that the three-year study by the bipartisan

Use the Federal Emergency Management Agency as a building block.

- Include three agencies and entities: The FBI's Office of Critical Infrastructure Protection, the National Infrastructure Protection Center, the Critical Infrastructure Assurance Office, private-sector information sharing and analysis centers, the Coast Guard, the Border Patrol and the National Guard.
- Coordinates critical infrastructure protection and cybersecurity through a National Crisis Action Center and a CIP directorate.

comprised of thousands of private firms, said streamlining the critical infrastructure protection effort in this way would be a welcome development. The current structure "is very confusing, with many points of entry. Having a primary source of contact with industry would make it a lot easier," he said.

commission — the first such comprehensive review of national security structures since 1947 — doesn't go ignored, said Kim Kotkin, a member of the Texas Republican staff.

"You have to do more with this report than stick it on a shelf," she said.

The proposed critical infrastructure protection (CIP) directorate within the new agency would be responsible for overseeing critical networks and coordinating government and private-sector efforts to address the nation's vulnerability to electronic or physical attacks. That effort is now done through a maze of federal agencies and private partnerships.

Kotkin said Thornberry and others are prepared for an onslaught of criticism similar to Aftergood's. She added that the plan is not to build additional agencies but to streamline what is already in place.

However, with Congress evenly split by party lines and a profound lack of consensus about a security policy, any attempt at a sweeping reorganization right now seems doomed, said Aftergood. "Infrastructure protection will have to proceed on its own track," he said.

ISC Plans to Launch Fee-Based Security Alert Service

The Internet Software Consortium (ISC), which develops the server software most commonly used to direct traffic on the Web, is moving to create a fee-based information-sharing club that officials at the organization said will give software vendors and other companies timely warning about security holes affecting the ISC's products.

The disclosure of the plans for the information exchange came just one week after security analysts at the CERT Coordination Center at Carnegie Mellon University in Pittsburgh and Santa Clara, Calif.-based Network Associates Inc.'s PGP Security subsidiary issued simultaneous warnings about significant security vulnerabilities in multiple versions of ISC's widely used Berkeley Internet Name Domain (BIND) server (see "Hack of the Month," page 50).

Paul Vixie, chairman of the Redwood City, Calif.-based ISC, said that the new fee-based exchange is aimed at opening more direct communication channels with software vendors, Internet service providers and other companies when holes are found in BIND and other software developed by the ISC.

"ISC found that speaking to vendors through the CERT advisory process was somewhat awkward and made for extra work on both sides," Vixie said.

However, the ISC's plans to set up an exclusive information-sharing service have sparked a heated debate among some security analysts and technology users.

"What kind of an edge do they really think they'll be providing to IT staffs and security administrators?" asks Keith Morgen, a network security specialist at Termination Communications Group LLC in Nitro, W. Va. "And why would anyone pay for it? I think this is a pretty poor precedent."

John Tritak, the director of the U.S. Department of Commerce's Critical Infrastructure Assurance Office, called the consortium's plan a step in the right direction.

"The government's policy so far has been that we want industry to better organize itself to better share information," Tritak said. "For now, it's more important than anything else [for the technology] industry to take ownership of this issue," he said.

Ant Yoran, CEO of Ripple Inc., a network security monitoring firm in Alexandria, Va., said that although it's imperative that information be shared, he's "not convinced that doing it as a fee-for-service approach is the best way to do that."

— Dan Verton

7:15 p.m.

Fred didn't spend enough time planning the operation of his Web site.

Now his site is down, and he's breathing bisque.



Here's some free advice: call Nuclio before you go live.

Since 1995, we've successfully managed complex heterogeneous systems and mission-critical applications for some of the world's leading companies.

Why have we been successful? Because we take the time to understand our customer's business. We develop custom deployment and management plans built to their unique requirements before production begins.

Nuclio also manages and monitors the health of the customer's application solution day and night through Fusion,™ our proprietary automated monitoring system. And we've gathered the best application and infrastructure professionals in the business.

In short, Nuclio's clients are always ready. Are you?

If you are planning an e-initiative or are in doubt about the readiness of your current IT environment, then please give us a call at 877.665.0597 or find out more at www2.nuclio.com.

nuclio

Be ready.™

Oracle Revs Up App Server for Marketplace

Aims enhancements at eliminating middleware integration, better support

BY DAN VERTON

ORACLE Corp. last week announced the latest version of its Oracle9i Application Server, which the company claims eliminates the need for costly middleware integration and includes enhancements for business intelligence and wireless support.

Among the enhancements are a Lightweight Directory Access Protocol directory, a messaging server, unified messaging architecture and an embedded workflow engine, said John Magee, senior director of Oracle9i marketing.

Oracle has also added workflow and visual design tools and out-of-the-box adapters for common application-to-application integration.

The company claims that eliminating the need to integrate third-party applications gives the product a leg up on

other Java-based application server products, such as Sun-based BEA System Inc.'s WebLogic and IBM's WebSphere.

"As companies are moving to make Internet computing part of their mainstream IT infrastructure, they're having to put all of these pieces together from different vendors," said

Magee. "That's becoming more and more of a cost issue for these companies. So the goal was to provide a product above and beyond the core Java application server."

Downloads of Oracle9iAS from the company's developer community Web site reached 370,000 in December, Magee said. Oracle has registered more than a million downloads for its Internet Application Server since it was introduced.

"Anything that makes it easier for the developer to inter-

face with the database will be welcome," said Rich Niemiec, president of the International Oracle Users Group — Americas, a Chicago-based organization for Oracle's database users. "Improvements concerning e-mail and wireless are what developers [and] partners are asking for most right now, and they want easy interfaces to the database."

Although several of the announced enhancements can be classified as elements of an Internet application platform,

some appear to be Oracle's attempt to redefine the standard for Internet Application Server, said Mike Gilpin, an analyst at Giga Information Group Inc. in Cambridge, Mass.

"Clients are increasingly looking to get more of these product components from one vendor, and Oracle needs to have such a complement of products to compete across the whole platform," said Gilpin. But, he added, users have shown that they are quite happy to get their database management system from a different vendor than other elements of the platform.

Oracle9i Application Server costs \$5 per Universal Power Unit (UPU) for the standard edition, \$30 per UPU for the enterprise edition and \$150 per UPU for the wireless edition. ▶

Microsoft to Expand Access to Source Code

Code can be viewed but not modified

BY TODD WEISS

Microsoft Corp. is preparing to announce a limited expansion of its Windows source-code sharing program that could pave the way for "potentially hundreds" of new customers,

including some corporate users, to gain access to the code, a company official said.

Doug Miller, a group product manager for Microsoft's server-level software packages, said at the recent LinuxWorld Conference & Expo in New York that the plan will be detailed in the next few weeks.

But, Miller added, the impending expansion of the shar-

ing program doesn't mean Microsoft intends to break into the world of open-source software collaboration. Under the company's program, the code can be viewed but not modified in any way. "The intention is not to allow the chaos you have in the open-source world, where people create code that may be incompatible," he said.

Those who have taken ad-

vantage of the program in the past include hardware, independent software and chip vendors, plus an unspecified number of corporate users, a Microsoft spokesman said. "The criteria generally is large, good customers of Microsoft," he said, declining to provide numbers.

Like many other vendors, Microsoft has been providing its source code to some vendors and users for years, Miller and analysts said. Until now, though, the practice has been done quietly behind the scenes and under strict confidentiality agreements, he said.

By getting access to the code, IT troubleshooters can work backward to solve problems that may arise in software. Some large Windows users "feel that if they have access to the source code, they can get to the bottom of the problem faster," Miller said.

Last week at its Windows Embedded Developers Conference in Las Vegas, Microsoft announced that leading silicon vendors will be given access to Windows CE source code so that they can optimize the operating system for their architectures. Members of the Windows Embedded Strategic Silicon Alliance include Lucent Technologies Inc.'s Microelectronics Group, Hitachi Ltd., Intel Corp., NEC Corp. and Toshiba Corp. ▶

Decimalization Finds Its First Victims at Ameritrade

BY MARIA THOMLEY

The first decimalization-related problem of the year has hit Ameritrade Holding Corp. customers trying to buy and sell bulletin board-traded stocks.

Standard & Poor's, a division of New York-based The McGraw-Hill Cos., on Feb. 5 included incorrect data in its ComStock data feed, which provides Ameritrade with the quotes for these stocks.

The glitch stemmed from a miscommunication with Nasdaq Stock Market Inc. in Washington, which is in the process of converting from using fractions to decimals in its stock quotes.

The problem was that Nas-

daq began using new message types that weren't interpreted properly, resulting in garbled data, said David Bruckman, vice president for technology at Harrison, NY-based Standard & Poor's ComStock Inc.

"It was a fairly complex change, and a couple of message formats were subject to interpretation," he said. "We and a couple of other data vendors interpreted it differently from what Nasdaq intended."

Ameritrade discovered the problem on the morning of Feb. 5 and corrected it by 6 o'clock in evening, said Phil Nunes, a spokesman for the Omaha-based company.

"The people who went to the

Web site to trade were asked to call an 800 number and conduct the trade with a broker," he said. However, the affected customers weren't required to pay the higher broker-assisted trading price.

Nunes said Ameritrade is still evaluating how many customers were affected and how much the glitch cost the company.

Ameritrade wasn't the only broker affected. According to Wayne Lee, a spokesman for Nasdaq, approximately 10% of the recipients of that data feed had problems interpreting the decimal-based messages. Recipients included London-based Reuters Group PLC and Rosemont, NJ-based Automatic Data Processing Inc.

Most of the other recipients fixed the problem the same day or on Feb. 6, Lee said. He added that Nasdaq had kept its clients fully informed

that this particular feed was switching over to decimals, with vendor alerts on its Web site, e-mails and telephone communications.

According to Larry Tabb, an analyst at Needham, Mass.-based TowerGroup, the ComStock glitch was the first problem reported with the decimalization process. ▶

Next Up: Decimals For Securities

MARCH 12: First of 15 securities will begin.

MARCH 12: Second pilot, of approximately 150 securities, will begin.

APRIL 16: Remaining equity securities will be fully converted to decimals.

Reporter Carol Silva contributed to this story.

Somebody's going to profit
from all this e-commerce.
Will it be you?



sas

BRIEFS

Windows 2000 Server Tops 1M Mark

Microsoft Corp. announced last week that it had sold more than 1 million copies of Windows 2000 Server since its release last February. Group product manager Bob O'Brien said Windows NT 4.0 took 17 months to reach that mark. However, O'Brien declined to provide any breakdown of the type of Windows 2000 Business sold — such as entry-level Windows 2000 Server, Advanced Server or Datacenter Server. He also declined to differentiate the number of Business that went to resellers vs. corporations.

Feedback Sought On Signatures Law

The Federal Trade Commission and the U.S. Department of Commerce last week said they plan to hold a workshop April 3 on a provision of the new digital signatures law that requires companies to get consent from customers before using electronic documents in business dealings. The agencies said the workshop is aimed at assessing "the benefits and burdens of the consumer consent provision" of the Electronic Signatures in Global and National Commerce Act. The bill was signed into law last spring by former president Bill Clinton and took effect in October.

Short Takes

BARRONSBANDWIRE.COM INC. in New York posted a fourth-quarter loss and said it will add 250 full-time employees, or 10% of its workforce. . . . **WORLDCOM INC.**, recently fourth-quarter revenue of \$1 billion, down 40% compared with \$2.5 billion a year earlier. Officials declined to comment on reports about a reduction in the company's workforce. . . . **FREIGHTWAVE INC.**, a Fort Worth, Texas, freight transportation online marketplace, is changing direction after two years in business. . . . **VERIZON COMMUNICATIONS** in New York last week announced plans to build and operate its own global network to carry data, Internet and voice traffic. One day earlier, **SPRINT CORP.** had outlined a revamped international strategy that includes expanding its IP network across Europe and Asia.

Wall St. IT Women Trail Men in Pay

Survey: Work/life balance challenges keep women out of highest-paying jobs

BY MARIA THOMBY

MEN STILL EARN 50% more than women among Wall Street's IT professionals, a new survey revealed last week. But more women are breaking into more upper IT ranks, which could lessen the gap in the years ahead.

According to a just-completed survey of 200 financial technology professionals in the securities industry, the median income for men is \$218,000 — and only \$143,000 for women. The survey was conducted by New York-based AG Barrington Inc.

The difference, according to survey author and AG Barrington managing director Alan Geller, is work/life balance issues that have been keeping women out of the highest-paying direct sales jobs.

Geller, who tracks some 3,000 people working in the securities industry, says that women are greatly underrepresented in sales.

"Based on our research, of the 131 individuals who hold the title of director of sales or worldwide head of sales in Wall Street firms, only 12 are women," he said.

The reason for this, according to Geller, is that these positions typically demand a great deal of travel and a large time commitment.

"The quality-of-life issues were definitely more important to the women than the men," Geller said.

More Men Seeking Balance

This situation might be changing, however.

"I'm seeing many more men wanting more work/life balance," said Kristine Hanna, co-founder and CEO of GirlGeeks Inc., a San Francisco-based Web site for female IT professionals.

In addition, she said, companies are beginning to redefine

their job descriptions.

"The corporations are realizing that they need to hire these women," Hanna said. "Women are in such a powerful position right now because the companies need them. It's about diversity, but we're also about the bottom line."

Penelope Powell, vice president of regional sales at New York-based ILX Systems, a market data firm, said that she's experiencing the work-

force changes firsthand.

"Ten years ago, there were hardly any women on Wall Street," she said. "I was a trailblazer, but we're not anymore," Powell said. "I'm calling on more and more women in Wall Street firms — that's a refreshing change." Still, she said, only about 10% of her clients are women.

Putting aside the issue of direct sales, the salary gap becomes much narrower and can be attributed, in a large part, to a slight difference in years of experience, Geller said. The median number of years of experience for the

Popular IT Posts

Most popular Wall Street IT jobs for women:

1. Project management
2. Account/relationship management (tie)
3. Direct sales
4. Software architecture
5. E-business strategy

Most popular Wall Street IT jobs for men:

1. Project management
2. Account/relationship management (tie)
3. Market data services
4. Marketing/business development
5. Data architecture and management

women who were surveyed was 12.5 years, while for men it was 14 years. ♦

Brokerage Joins Movement Away From Net Pure-Plays

Spun off in 1997, online broker Suretrade will be folded back into Quick & Reilly

BY MARIA THOMBY

In another example of the move away from Internet pure-plays, online brokerage Suretrade Inc. will be folded back into parent company Quick & Reilly Inc. on March 3.

The two firms are both part of Boston-based FleetBoston Financial Corp., the seventh-largest financial holding company in the U.S.

A "modest number" of the 325 people working at Sure-

trade's Lincoln, R.I., headquarters will find their jobs eliminated as a result of the return, said Charles Salmans, a spokesman for New York-based Quick & Reilly Inc. on March 3.

The two firms are both part of Boston-based FleetBoston Financial Corp., the seventh-largest financial holding company in the U.S.

Following the Trend

The consolidation is part of a trend toward bricks-and-clicks, said Larry Tabb, an analyst at Needham, Mass.-based TowerGroup. Online-only brokers are becoming increasingly rare, he said.

"There are still players who don't have physical presences," said Tabb. "Some will be relegated to being niche players. The majority of them will either create a physical presence or be acquired."

According to Salmons, Quick & Reilly spun off Suretrade in 1997 after rolling out Web-based trading in 1996.

Lincoln, R.I., was chosen as

SureTrade's headquarters because the labor market there is less expensive, Salmans explained.

After last year's downturn in the stock market, however, customers began to demand more individual attention and advice, he said.

Quick & Reilly was much better suited to be able to deliver that because of the nationwide investor center network that we have," he said.

As a result of the consolidation, Suretrade customers will be able to get advice from

Quick & Reilly brokers, and Quick & Reilly customers will be able to use the Suretrade online trading platform, which will retain that brand name.

The pricing structure will also change. Customers currently pay \$795 to \$995 for online trades through Suretrade. This fee will increase to match Quick & Reilly's online trading prices of \$14.95 to \$19.95.

Other online brokers are taking moves toward the physical world as well.

Menlo Park, Calif.-based ETrade Group Inc., for example, will open its first real-world branch in New York in April. The firm also announced plans about two weeks ago to open 20 branches in Target retail stores, which are owned by Minneapolis-based Target Corp. ♦

Quick Facts

SURETRADE
Lincoln, R.I.
500,000
customers

QUICK & REILLY
New York
1.3 MILLION
customers total
430,000
online customers

71% of network
security breaches
are inside jobs.

intel pro network
adapters help
lock them out.

intel.

protect sensitive data on the LAN with intel® pro/100 s network adapters. an onboard encryption co-processor and industry-standard IP security support ensure that data traveling to and from your PCs and servers is encrypted to maximize confidentiality, all without slowing down processing time. this is just one of the many new ways intel adapters are solving problems you never thought adapters could solve. make sure you specify intel adapters. because in the surge economy, if you aren't safe, you'll probably be sorry. [the intelligent way to connect → intel.com/go/pro](http://intel.com/go/pro)

Continued from page 1

Web Services

the quote requests and sends message receipts and final rates. Tom Wina, InsurPoint's chief technology officer, said his company would be able to offer similar Web services from other large insurance carriers because of the built-in Web services.

"Rating is a complicated process, and we didn't want to rebuild [functionality] that was already available on another site," Wina said. "In a grand sense, it's distributed, and ultimately, that's the way we want to communicate with each insurance carrier, because it's the most efficient way to get the information."

But as of last week, all of the

major operating system vendors — Microsoft, IBM, Hewlett-Packard Co. and Sun — had competing initiatives under way to build software that uses remote procedural calls, HTTP and XML. They also endorse the Universal Description, Discovery and Integration directory, which allows businesses to publish the type of Web services they offer.

"This is a call to developers that they're no longer building applications for [within the] enterprise," said Josh Walker, an analyst at Forrester Research Inc. in Cambridge, Mass.

Sun's two-year road map for Sun ONE includes a portfolio of new software. But two years is too long for some companies, Walker said, noting, "Bleeding-edge firms will not wait."

Put General Motors Corp. in that camp. GM is building into

its vehicles a Web services infrastructure that uses Java and Sun's wireless Jini software, according to Mark Hogan, president of the e-GM unit.

But the world's largest automaker has also infused its extensive Web and telematic (in-vehicle communications) offerings with Web services that fall outside of Sun's realm. And they won't wait for Sun or other vendors to deliver the services and tools.

Last spring, GM, on its own, began revamping its OnStar in-vehicle communications service with a distributed infrastructure that utilizes Web services in the form of XML-based voice files on wireless devices. It's also using Web services for a human resources portal launched in November that can be accessed via the Web or television. ♦

Continued from page 1

Wireless LANs

ber of flaws" in the Wired Equivalent Privacy (WEP) 40-bit algorithm used to secure all IEEE 802.11 standard wireless LANs. These flaws, the Internet Security, Applications, Authentication and Cryptography (ISAAC) report stated, "seriously undermine the security claims of the system."

The ISAAC report said wireless LANs have several vulnerabilities, including a susceptibility to passive attacks aimed at decrypting traffic based on statistical analysis — a process made easier by the broadcast nature of wireless systems. WEP also has flaws that make it easier to inject unauthorized traffic from mobile base stations and that make traffic vulnerable to decryption by tricking the base station, which in turn is connected to a wireless network, the report said.

Enterprise network managers said the ISAAC report highlights problems inherent in wireless LANs. But they said savvy users have already factored the vulnerabilities into their defensive architecture.

Michael Murphy, director of IS support services at Minneapolis-based Carlson Hotels Worldwide, said his organization plans to deploy a wireless LAN architecture encompassing about 250 properties. "We

were aware of the shortcomings in WEP for some time," Murphy said. "I want something stronger [including] VPN encryption."

Tom Mahoney, network manager at Franklin & Marshall College in Lancaster, Pa., is in the middle of deploying a 100-node wireless LAN from Apple Computer Inc. A virtual private network (VPN) "seems to be a reasonable solution to the problem," he said. But "only end-to-end encryption" will provide true security.

The security warning comes as wireless LANs — which currently provide high-speed connections at 10M bps, with new products in the pipeline that will double that speed — continue to gain popularity in the corporate and home markets. Gartner Group Inc. in Stamford, Conn., estimates that more than half of Fortune 1,000 companies will have deployed wireless LANs within two years.

John Pescatore, a security

Wireless LAN Security

The ISAAC report says 802.11 encryption is "severely flawed," making it easy to intercept and active attack. IT managers say users should beef up wireless networks with VPNs and end-to-end encryption.

New products include longer keys generated on a per-person, per user basis.

analyst at Gartner Group, said the proliferation of enterprise wireless LANs demands increased security because every laptop equipped with a wireless PC LAN card is a potential "sniffer."

Pescatore said the underground hacker community is hard at work developing downloadable scripts to tap into wireless LAN networks, and he predicted that such tools will be available this year. "Within six months, 'script kiddies' are going to be able to drive around corporate campuses" and easily tap into unprotected wireless LANs, he said.

Phil Belanger, chairman of the Mountain View, Calif.-based Wireless Internet Compatibility Alliance, downplayed the ISAAC report.

"This is not new news," Belanger said, noting that the ISAAC has a group working to beef up wireless LAN security. Organizations should take steps to secure their wireless LANs, he said, suggesting that they could use 128-bit keys and exchange data over VPN "tunnels" when using a wireless LAN.

Vendors started taking steps last year to enhance wireless LAN security. The Orinoco division of Lucent Technologies Inc. in Murray Hill, N.J., and Cisco Systems Inc. in San Jose have introduced products that provide automatic encryption key generation and distribution of enhanced keys on a per-session basis. ♦

Sun: Paving the Road to Web Services

Sun's Web services strategy, Sun ONE, is designed to compete with Microsoft's .Net initiative. But it should pave the way for the development of smart Web services that would run on a variety of computing platforms, from PCs to handheld pages and cellular phones and even communication systems built into cars, according to Scott McNealy, Sun's chairman and CEO.

The initiative comprises a technology infrastructure called from Sun's Forte development tools and the iPlanet server package that were developed through an alliance with Netscape Communications Corp.

Sun plans to deliver the additional tools of the Sun ONE infrastructure over the next two years, officials said. It includes five

e-commerce applications built by Planet, a service deployment engine that supports XML, and a developer's release of the new Web development tool.

It also makes a more aggressive move into software applications and services for Sun, which is the maker of hardware and the originator of the Java development language.

Rob Enderle, an analyst at Giga Information Group Inc. in San Jose, said the initiative may prove a difficult course to navigate.

"Sun management does not understand software," he said. "It's like a hockey team entering the Stanley Cup, then deciding that they want to play professional basketball or football."

— Lee Copeland/Globe

Continued from page 1

Domains

Numbers (ICANN)

Vinton Cerf, who took over last year as chairman of the ICANN board, defended the process through which the Marisa Del Rey, Calif.-based organization approved the new domains. But he agreed that ICANN should refine the process. "I absolutely accept the idea that we need to re-examine the procedure that we used," Cerf said during the hearing.

Procedural Challenges

Members of the Commerce subcommittee pulled no punches with Cerf and other ICANN officials.

"ICANN was not given authority to assume [a policy-making] function and [yet] appears to be accountable to no one except God almighty for its actions," said Rep. John Dingell (D-Mich.).

Rep. Edward Markey (D-Mass.), vice chairman of the subcommittee, added that events at the Vatican "are shrouded in less mystery than how ICANN chooses new top-level domains."

The examination of ICANN's procedures stems from its handling of the top-level domain selection process that resulted last November in the approval of seven new domains — .aero,

.biz, .coop, .info, .museum, .name and .pro — that are due to join existing domains such as .com and .org. More than 200 proposals were submitted by 44 applicants, each of whom had to pay a \$50,000 application fee.

The ICANN board decided to limit the introduction of new top-level domains, at least initially, to keep the changes to the domain naming system at a manageable level. But in doing so, it rejected applications from companies that seemingly met all the predefined technical and financial requirements. Critics accused the board of running a subjective and arbitrary selection process.

The subcommittee could exert a heavy hand on ICANN by asking the U.S. Department of Commerce to halt the introduction of the seven new domains. But Rep. Fred Upton (R-Mich.), the panel's chairman, said after the meeting that he doesn't expect to take that step. "I don't think anyone is seeking to see that happen at this point," he said.

That's apparently a relief for Cerf. "I think we need to get going on the first set of [new top-level domains]," he said in an interview. "The sooner we can get them up and running, the sooner we will get some feedback, and that will satisfy our uncertainty" about the ability of the naming system to handle more top-level domains, he said. ♦

University Computers Remain Hacker Havens

U.S.-funded machines are launching pads for cyberattacks on business Web sites

BY DEBORAH RADCLIFF

ALITTLE OVER a year ago, on Feb. 7, 2000, the first wave of distributed denial-of-service (DDOS) attacks hit Internet portal Yahoo Inc. During the next few days, other high-profile Web sites — including eBay Inc., Buy.com Inc., Amazon.com Inc., ETrade Group Inc. and CNN.com — were knocked off the Net by millions of packets coming from thousands of far-flung computers.

But the stage was set for those high-profile attacks back in the summer of 1999. That's when university systems began finding software agents — tools planted by hackers to launch future denial-of-service attacks — hidden on unprotected machines inside their sprawling networks. In August of that year, a preliminary DDOS incident took down several hundred hosts at universities.

So it wasn't a huge surprise that, when the full-scale DDOS assault happened in February, many attacks could be traced back to computers tucked away in research departments at Stanford University, the University of California at Santa Barbara, the University of Washington, Oregon State University and James Madison University, to name a few.

"Why were universities so involved in these attacks? Because they're naked," said Stephen Northcutt, head of the SANS Institute's Global Incident Analysis Center in Bethesda, Md. "They're sitting out there on the Internet with no firewalls or anything."

So naked are many of these university computers that the problem caught the attention of Jeffrey Hunker, who was director of the critical infrastructure outreach program at the National Security Council (NSC) during the Clinton administration.

"Universities were a major

contributor to the DDOS attacks. They've always been a major contributor to security problems. This is clearly an area which I believe the [Bush] administration should tackle," Hunker said.

Kurt Bryson, a forensics investigator at New Technologies Inc. in Gresham, Ore., said securing computers at universities is complicated by a number of factors: lack of money, transient students who run (and tinker with) the machines and zero accountability. University IT departments don't have responsibility for securing the research machines — and it's not clear who does have that responsibility.

"In many universities, there's really no way for IT staff to know what machines are out there, especially in the research areas," said Randy Marchany, coordinator of a computer security center for Virginia universities, which he operates out of Virginia Polytechnic Institute and State University (Virginia Tech) in Blacksburg, Va.

Hackers have long considered university systems their playground, according to a 28-year-old East Coast hacker who goes by the handle "Yester-Ra." The research computers have the Internet access and processing power to do most anything hackers want them to do — and often they are unsupervised and unused.

No Money for Admins

Typically, the computers themselves were obtained with grants from U.S. science agencies that are more interested in advanced research than computer security.

"Researchers are given money by the National Science Foundation (NSF) and the National Institutes of Health to buy computers to conduct research. But they can't use that money for system administrators or security manpower. They can only use that grant

money for equipment," explained Dave Dittrich, a senior security engineer at the University of Washington in Seattle. Dittrich was one of the first people to discover denial-of-service agents lurking in university networked systems.

When researchers get these government-funded computers, they plug them in, replace all their default passwords, vulnerable services, unpatched programs and listening ports. Student researchers reconfigure the machines, add and delete a lot of software and

should hold the grantees accountable — or how.

Clamping down on researchers could chill the very innovation the grant programs are trying to foster, said George Strawn, executive officer of the NSF's Computer, Information Science and Engineering Directorate in Arlington, Va.

"First of all, great things happen in our distributed universities when you get rid of some of the bureaucracy tied to IT support. It unleashes a lot of creativity," said Strawn, who comes from a university sys-

tem that itself — could be stolen. So his department is working with Educause, a Washington-based nonprofit association of 1,800 universities, to address the problem.

Changes Afoot

Educause formed a task force on systems security that's disseminating some tactical guidelines for DDOS detection, prevention and response. Educause has several security working groups, including a fast-hit program to try to get universities to at least address the top 10 vulnerabilities and an awareness committee to educate nontechnical university officials and research faculty.

"We've been well aware of the security problems at universities and colleges — and the fact that higher education was implicated in the DDOS attacks," said Mark Luker, an Educause vice president. "Every one of those 1,800 campuses involved in our program is working on their own campus security now, so you're already starting to see some change. But it'll probably take a year or two to educate everyone."

Plus, universities themselves are forming Computer Incident Response Centers such as the one in Virginia. And Virginia Tech has started to keep track of the machines on its network by charging a \$5 "port fee" for any new computer plugging in to the network. At the time of the new connection, an administrator is assigned oversight for that machine.

These are steps in the right direction and will reduce the risk of universities wreaking havoc on Internet neighbors such as Seattle-based Amazon.com, said observers. But academics have a long way to go to eliminate its role as the weakest link in the security chain.

Universities are already worried about a new type of distributed attack that could be launched from academic systems, said Todd Heberlein, a computer security research consultant at the University of California at Davis.

"We've had FTP attacks rigging through the university system for the past three months," he said. "Any guess is these attacks are or will be forming the backbone for some sort of future distributed attacks."



DAVE DITTREICH at the University of Washington says university grant money is restricted to equipment, so security is neglected.

then move on, leaving the machines to other students, or in some cases, to no one.

So last summer, Hunker called the NSF to discuss changing the grants process so that agencies could fund computer security, too. But an NSF spokesperson responded that it's not up to the granting agency to ensure that systems are properly secured.

A White House Office of Management and Budget (OMB) memo acknowledges that securing and managing computer equipment is up to the grantees. But the OMB document doesn't say who

terms background.

"The research universities helped build the Internet," he continued. "Now they're working on Internet 2. And new protocols, like the IT infrastructure to support full-motion video and telepresence, are coming out of these universities, too. A firewall would pretty much kill that kind of innovation."

However, Strawn acknowledged there are downsides to bad security at the university level. One is the legal liability to Web businesses that get hacked from university computers. Another is the fact that intellectual property — the

LOOK NOSE

New ARCserve® 2000 Offers Serverless Backup And Re

It couldn't have come at a better time. With eBusiness storage needs typically doubling every 18 months, and the growing demand for 100% uptime and availability of servers, IT administrators are facing ever-greater challenges.

New ARCserve® 2000 is the answer. SAN environments are becoming increasingly popular as businesses recognize the importance of a separate storage management infrastructure. With serverless



Computer Associates™

Ma, even store Plus Hundreds Of Other Enhancements.

backup and restore, ARCserve 2000 represents a major breakthrough in data storage. With SAN, there are several new industry-leading capabilities like shared tape libraries and high-speed data transfer.

ARCserve 2000 leverages industry standards for assured compatibility with incredibly easy implementation. It offers the first scalable, proven enterprise-class data protection that's really easy to use.

The new Web-based GUI delivers the power to manage far-flung data backup and recovery operations from a single location. And disaster recovery can be as simple as a single step.

High performance, industry standards, easy to use, and unprecedented value. Just a couple of reasons why new ARCserve 2000 is the best storage solution for the eBusiness revolution. Visit ca.com/arcserve for more information.



New ARCserve® 2000

© 2001 Computer Associates International, Inc. CA, All trademarks, trade names, service marks, and logos referenced herein belong to their respective companies. Printed in the U.S.A.

NEWS

Wireless Technology Changes the Face of CRM

Analysts predict widespread acceptance of technology in near future

BY MARC L. BORSHNIK

GEORGE Motors Corp. helps drivers figure out what to do when the ambiguous "check engine" light goes on.

For subscribers to the Detroit-based company's OnStar wireless customer relationship management (CRM) program, special diagnostic services are available to let drivers know whether the light is an indication to pull over immediately or drive to the nearest garage.

The service, said Bruce Radloff, CIO at GM's OnStar unit, includes wireless links to a call centers running CRM applications from Cupertino, Calif.-based Chordiant Software Inc.

OnStar, which has been available for five years, has a high retention rate, and GM has been able to use it as a sales tool, said Radloff.

This may be the future look of CRM, according to analysts.

The proliferation of wireless technologies such as the Wireless Access Protocol (WAP) communications format as well as devices such as smart cell phones, personal digital assistants (PDAs) and pagers will change the face of CRM, said Dan Goldsmith, a consultant at PricewaterhouseCoopers in New York. Within a few years, salespeople and mobile service personnel will be able to access relevant customer data with Web-enabled handheld devices wherever they may be, increasing efficiency and helping their companies to cut expenses, he said.

New Alliances Forming

Very few wireless CRM systems have been built and running as long as OnStar, and the underlying technology has seen limited acceptance. However, that could start to change as early as this year, say analysts, because a number of heavyweight vendors, such as Micro-

soft Corp., Siebel Systems Inc. in San Mateo, Calif., and Palm Inc. in Santa Clara, Calif., have announced alliances to start delivering wireless business applications to users before the end of the year.

Wireless devices make it easier for service and sales personnel to access CRM data anywhere. And with support costs of about \$1,500 per year, they are far cheaper to maintain than PCs, which cost \$15,000 annually per user, said Goldsmith.

And customers themselves should be able to start accessing service applications with

wireless devices within a few years, say analysts. Indeed, a report released last month by Newton, Mass.-based Cahners In-Stat Group indicated that wireless devices will surpass PCs as the most popular method of accessing the Web over the next several years.

Customers are already able to use wireless devices to check the status of packages being delivered by Atlanta-based United Parcel Service of America Inc., which rolled out the service in September.

UPS customers can also determine the estimated delivery times of their packages using PDAs or cell phones.

It costs UPS 10 cents per call to access CRM data via wireless Web connections. Using a phone, the cost rises to \$2.50 per call.

Obstacles to implementation

Still, there are obstacles to implementing wireless CRM systems.

Although the technology underlying CRM is sound, said Goldsmith, companies need more devices that can communicate in a wireless format to achieve greater results.

For instance, that could mean enabling cell phones to scan bar codes or read customer information off of jukeboxes



ONSTAR CIO Bruce Radloff: Wireless CRM boosts sales.

or automated teller machines. Plus, making CRM applications run on a variety of wireless platforms — including Palm devices and Windows CE-based appliances — is another major obstacle.

Some potential corporate customers are hesitant as well. Indeed, of 581 companies surveyed recently by Hurwitz Group Inc. in Framingham, Mass., less than 32% said they have plans to use wireless devices in their e-business rollouts. The companies studied ranged in size from under \$50 million to over \$10 billion.

"We have an interest, but [wireless CRM is] not there yet," said Frank Ammerman, vice president of business systems at IBSI LLC, a Lancaster, Pa.-based distributor of employee benefits products. IBSI currently uses CRM applications from Youcentric Inc. in Charlotte, N.C., and is exploring the possibility of moving to wireless CRM applications later this year. "The potential is there," said Ammerman.

UN, IT Leaders Brainstorm On Foreign Development

Officials discuss best use of IT to aid developing nations

BY THOMAS HOFFMAN

NEAR NEW YORK

While business and government leaders huddled down to discuss global issues in the tiny resort village of Davos, Switzerland, last week, a group of United Nations delegates and IT industry officials gathered here to discuss possible approaches to leveraging IT to improve social and economic conditions in developing nations.

The upshot is that government, academia and business need to partner more often to create business and educational opportunities for citizens in emerging countries. But to help make that happen, said attendees, governments will have to open their markets to investment capital.

The problem for many un-

derdeveloped nations is that "there is a severe lack of capital," which is needed to improve primary and secondary education, as well as to support the growth of industry and improve the existing communications infrastructures, said Percy Manguela, the UN ambassador from Lesotho.

Manguela was one of 17 attendees of the roundtable discussion co-sponsored by the UN Working Group on Informatics and AIT Global Inc., a

worldwide association of IT professionals based in Kings Park, N.Y. The event was held at the residence of the Danish Mission to the UN.

One organization that's helping is New York University (NYU). The school is working with U.S. and Albanian government agencies and businesses to set up a computer sciences degree program for several hundred students in Albania.

The program is scheduled to open in about 16 months, said David Finney, dean of NYU's School of Continuing and Distance Education.

Still, Finney acknowledged that one of the biggest challenges that countries like Albania face is a fear among gov-

ernment officials that students will receive long-distance, computer-based learning from IT professors in New York and then be courted to work for U.S. companies.

Preventing 'Brain Drain'

That's certainly true in India, 60% to 70% of computer science students who are attending elite universities there are "being recruited by foreign companies," said Nitia Desai, the undersecretary general for the UN's Department of Economic and Social Affairs.

"A lot more work needs to be done" in partnerships between government, industry and academia in India to prevent the "brain drain" that has been occurring there, Desai added.

Perhaps the most somber message came from Martin Belling-Ebouhou, the UN ambassador from Cameroon who is also the president of the UN Economic and Social Council.

"Eighty-eight percent of the world's Internet users [live] in industrialized nations. In Africa, we have less than one telephone per 100 inhabitants," said Belling-Ebouhou. "So talking about the use of information technology for social and economic development is a huge problem [for us]."



A GROUP OF UNITED NATIONS delegates and IT industry officials gathered in New York to discuss possible approaches to leveraging IT to improve social and economic conditions in developing nations.

Liebert's comprehensive protection
is designed to prevent downtime
from coming to downtown.



AC Power
DC Power
Precision Air
Site Monitoring
TVSS



www.liebert.com



THE MYTHICAL FIVE NINES. 99.999%. AS CLOSE TO PERFECT

For a server operating system, the five nines are a measure of reliability that translates into just over five minutes of server downtime per year.* Of course, rumors of this 99.999% uptime usually start under ideal lab conditions. But where are these five nines when your company needs them? If you're using Microsoft® Windows® 2000 Server-based solutions, they may be closer than you think. Today Starbucks, FreeMarkets and MortgageRamp, an affiliate of GMAC Commercial Mortgage, are using Windows 2000 Server-based systems that are designed to deliver 99.999% server uptime. With system architecture improvements for higher server uptime plus fault-tolerant and redundant systems for increased availability, the Windows 2000 Server platform is helping these companies maximize



Windows 2000
Server Family

*Five level of availability is dependent on many factors outside of the operating system, including other hardware and software technologies, administrative operational processes and professional services. © 2000 Microsoft Corporation. All rights reserved. Microsoft, Windows, and the Windows logo are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. The names of actual companies and products mentioned herein may be the trademarks of their respective owners.



AS YOU CAN GET WITHOUT BREAKING SOME LAW OF NATURE.

uptime and minimize network interruptions. But a server OS alone doesn't get you five nines, which is why we've teamed up with industry-leading system providers to ensure that the right combination of people, process and technology is utilized. Industry leaders such as Compaq, Hewlett-Packard, Unisys, Stratus and Motorola Computer Group can work with you to deliver solutions with up to five nines uptime with their custom-built Windows 2000 Servers shipping today. Of course, not all installations require this level of reliability, but one thing is for sure: The Windows 2000 Server family can help you get to the level of reliability you need, even five nines. To learn more about server solutions you can count on, visit microsoft.com/windows2000/servers Software for the Agile Business

Microsoft

GM Considers Online Sales Site for All Makes

BY JENNIFER DIBBETSON
General Motors Corp. is considering a venture that would allow consumers to compare

son-shop for cars without a high-pressure sales pitch.

In a filing with the Securities and Exchange Commission

(SEC) Feb. 2, the Detroit-based automaker said it would either buy an existing Web site, such as the one run by Culver City,

Calif.-based CarsDirect.com Inc. or start one on its own with investment from dealers.

GM is also proposing to sell its vehicles and offer information on the site for other makes and models of cars, citing re-

search that indicates many consumers prefer "independent" dealers on the Web.

The GMBuyPower.com Web site, which sells GM vehicles exclusively, will continue to operate, according to the filing.

The proposed company, to be called AutoCentric JV LLC, will be formed only if there is "sufficient interest among the GM dealers," according to the SEC filing. The filing is a notification of intent to sell shares in the venture, should dealers show sufficient interest.

Integration Slow but Steady

The offering is good news for consumers, said Hiro Mori, an analyst at Automotive Consulting Group Inc. in Ann Arbor, Mich.

At the very least, consumers can do their research online at home before approaching a car salesman on the lot, he said.

However, getting some dealers to buy into this may be tricky, since it may require some standardization of inventory-tracking software. Dealers have resisted such attempts at standardizing systems before, Mori said. Plus, different departments within GM, such as sales and purchasing, may not use the same software.

"GM does not now have good data on consumer trends to put into a production schedule," Mori said, but the Big Three auto manufacturers — GM, Ford Motor Co. and DaimlerChrysler AG — are working on projects to internally integrate their own different systems and software.

"Their information-processing ability will improve to the future," said Mori. "That's a big task. I don't think it's going to happen overnight. But, I think everybody's moving in that direction."

In the SEC document, GM said it may not sell cars directly but could work through dealers who buy shares in the online company. Those companies could offer all or part of their inventory online.

The dealers could then offer cars with an "e-price," or a firm price that avoids haggling on Web-listed inventory. Or, the dealer could list the models as "referrals," or vehicles that are in stock but without a price, which allows more room for bargaining.

A customer would then contact the dealer and ask for a price on the "referrals" cars. ▀

Mark Your Calendar for...

The Hottest Conference This Spring!

STORAGE NETWORKING WORLD

April 9 - 11, 2001

Marriott Desert Springs • Palm Desert, California

Storage Networking World® – User Strategies and Solutions



Marriott Desert Springs Resort & Spa

- Storage Networking World®, an alliance between the SNTA and Computerworld, promotes access to the latest information on storage solutions for users, implementers and vendors.
- A conference program featuring industry leaders, exciting panels, informative sessions, analyst updates, tutorials, and a multi-company interoperability lab.
- Package includes an Expo (solution showcase), meals, receptions, and a complimentary (for users and implementers) golf outing.
- Register now for early-registration discount.



Marriott Desert Springs Resort & Spa

For more information about Storage Networking World® or to register, visit

www.computerworld.com/snw

or call 1-888-239-4505

Attendees of Storage Networking World® will see solutions from...

Gold Sponsors



Sponsors listed as of 2/20/01



BRIEFS

IBM Combines Server Units into One Group

IBM is undertaking an internal restructuring under which the company is combining its server units into a single organization and setting up a new product group that will include its PC, printer and retail-store software operations.

As part of the restructuring, IBM has moved its server line of Intel-based servers from the PC division to its server group, which previously had responsibility for the company's mainframes and AS/400 and RS/6000 product lines.

Microsoft Adds 'XP' To Windows, Office

Microsoft Corp. has added "XP" at the end of the names of its new versions of Windows and Office. The initials, which stand for "experience," are meant to symbolize "the rich and extended user experiences Windows and Office can offer by unleashing Web services that span a broad range of devices," Microsoft said in a statement.

Office 10 — formerly dubbed Office 10 — should get a public release by the end of the second quarter. Windows XP — formerly known by its code name, Whistler — is expected to make its market debut in the second half of this year. Microsoft said it will release additional details about Windows XP on Feb. 12.

J.D. Edwards Shakes Up Management

Business applications vendor J.D. Edwards & Co. last week announced that it expects to report a loss for its fiscal first quarter and said it's bringing in a new chief operating officer, in addition to another executive who will take over direct responsibility for the company's marketing activities.

Denver-based J.D. Edwards projected a loss from "normalized operations" of up to 2 cents per share during the quarter ended Jan. 31, on revenue of \$208 million to \$220 million. That's down from \$222 million in the same period a year ago, when the company reported a net profit of \$3.6 million before accounting for some acquisition-related costs.

Novell and Partners Launch \$80M Start-up

Volera promises to better content delivery

BY MARC L. SONGINI

A GROUP of major industry players is launching a start-up that boasts it will offer services and products that will boost Web content delivery for enterprise networks.

Representatives from Novell Inc., Brampton, Ontario-based Nortel Networks Corp., and Chicago-based Accenture recently announced the creation of Volera Inc. The 6-month-old, \$80 million firm is based in San Jose and has 170 employees.

Volera executives said it will give enterprise networks and Internet service providers integrated caching and content-management products, as well as services to boost the quality and speed of the delivery of secure multimedia Web content.

Novell's Role

Novell will be chief equity partner and a contributor of technology and personnel from its Net Content Services Group, said Simon Khalaf, Volera's president and a former Novell executive. Novell CEO Eric Schmidt will be the start-up's chairman.

Last fall, Novell had hinted of its intent to spin off its Net Content division. As part of the deal, Novell will turn over its Internet Caching System (ICS) software, which will subsequently be known as Accelerator. ICS-enabled appliances, such as Compaq Computer Corp.'s C-Series Task-Smart Web acceleration server, can cache and serve up popular Web pages without having to go to the original Web server.

Volera will also offer Novell's Content Exchange Web acceleration and redistribution service for Web hosting centers, said Khalaf. However, the Volera Web site states that the company will also work to develop its own offerings.

Although the road map is a bit vague, Volera will sell its technology to Web appliance

makers that will then resell it "under the hood" to corporate end users, said David Willis, program director of global networking strategies at Meta Group Inc. in Stamford, Conn.

Volera will also sell its content exchange services hand-in-hand with content delivery service providers such as Cambridge, Mass.-based Akamai

Technologies Inc.

Depending on the success of Volera's offering, there could be an indirect impact on enterprise users who need to manage large amounts of Web traffic internally. But, Willis said, "there is a trade-off between bandwidth consumption and the cost of moving content to the edge of the network."

Also significant is Novell's move to offer products through a third party. "Historically, Novell's brand has been sacred

AT A GLANCE

Volera Inc.

Headquarters: San Jose

Partners: Accenture, Nortel, Novell

Funding: \$80 million

Purpose: Offer products and services to boost the quality and speed of the delivery of secure multimedia Web content

Number of employees: 170

President: Simon Khalaf

to them," said Willis. "Now they've realized, perhaps a bit too late, that the Novell brand has so many legacy connotations, they have to separate themselves from it."

Volera will start to deliver products within one month, said Khalaf. ▀

Dell Closes Marketplace After Four Months

B2B exchange had too few participants

BY TODD R. WEISS

Analysts said Dell Computer Corp.'s sudden shutdown of a business-to-business exchange it launched with great fanfare just four months ago is more evidence that companies need to be sure of what they're doing before they dive into Internet-based business strategies.

Like many participants in such exchanges, Round Rock, Texas-based Dell was lured by predictions that online marketplaces would make good sales channels, said Ronald Exler, an analyst at Robert Francis Group in Westport, Conn. "They got caught up in the hype," he said. "I think they probably didn't realize the nature of what they were getting into."

Last week, the PC maker confirmed that Dell Marketplace, the exchange it launched in October, was closed earlier this month. Dell teamed with Mountain View, Calif.-based Arista Inc. and other software vendors to set up the exchange as a site where users could shop for products from Dell and other companies. But it pulled the plug after only three suppliers — 3M Co., Motorola Inc. and Pitney Bowes Inc. — joined the exchange.

Rob Rosenthal, an analyst at IDC in Framingham, Mass., said the speed with which Dell gave up on the venture is noteworthy. "They might not have realized [up front] that it was going to be a longer-term venture [to make the exchange a success]," he said.

Dell spokesman Ken Bissell declined to say how much the company had invested in the

venture. The decision to close the exchange wasn't based on the small number of participants, Bissell said, but he acknowledged that the collaborative comment showcase that Dell had in mind is "somewhat immature." The company quickly discovered that customers aren't ready to use exchanges such as Dell Marketplace in droves, he said.

Some users had asked Dell to develop a Web site with the capabilities that the exchange offered, Bissell said, "but as things sometimes go, you recognize that situations can change."

More Bad News

The exchange's shutdown comes two weeks after Dell warned that profits will likely be below expectations in its fiscal fourth quarter, which ended Feb. 2.

Dell will now use Supplier Advantage, a program it set up with Microsoft Corp. to market business-to-business technology to users who want to create their own online marketplaces. That offering bundles Dell's servers with software from Microsoft and consulting services from Chicago-based Lantech Corp.

Bissell insisted that prospective Supplier Advantage customers shouldn't view Dell's pullout from its exchange as an ominous sign for their online ventures. "I don't see it as a mixed message at all," he said. ▀

■ Opened www.dellmarketplace.com in October with three online suppliers — Pitney Bowes, 3M and Motorola — to offer business customers a one-stop site for Dell computers and other business goods

■ Held talks with other suppliers to add products, but negotiations failed to lead to more vendor agreements

■ Will continue bundling servers with Microsoft software and e-business services from Lantech Corp., as it tries to sell the idea of online marketplaces to its own customers

MARK HALL

Inactive Directory

GRAND VISIONS IN computing require simplistic explanations. Pity they don't work that well. In the 1980s, IBM's majestic breadth of operating environments was supposed to be unified under its famed Systems Network Architecture. SNA was to bring

all of IBM's technologies together. Well, eventually. Uh, sort of.

Now it's Microsoft's turn to give us grand visions of rationalization for a platform strategy that's getting (intentionally) out of control. This week, the company will announce Windows XP, an addition to an operating system lineup that includes Windows 95, Windows 98, Windows NT, Windows CE, Windows 2000 Professional, Windows 2000 Server, Windows 2000 Advanced Server, Windows 2000 Data Center and even little ol' Windows Me.

Microsoft's simple solution to its operating systems proliferation problem is said to be Active Directory. Its duty will be to keep all of the user, resource and application information current, distributed and managed among whatever you've got on your network. Even if it happens to be cross-platform. (It sure is nice when Microsoft recognizes the real world.)

That's why Active Directory is based on LDAP, Kerberos, MAPI and other industry standards. But because Active Directory insists on controlling down to the network protocols, it will play nice only on a network where it's the master and all other directory servers and services are slaves. If you chat with system administrators or surf the Windows chat boards on-



MARK HALL is Computerworld's West Coast editor and can be reached at mhall@computerworld.com.

line-based Internet services didn't mesh well with SNA.

No one talks about SNA much these days. Coincidentally, not many people are doing much with Active Directory these days either. Although Microsoft announced last week that it will reach the 1 million mark this month for Windows 2000 server licenses, the company is uncharacteristically modest about how many Active Directory installations it has so far. Some reports say as few as 15% of all Windows 2000 upgrades include Active Directory in their rollouts.

Like IBM's grand vision of SNA, Active Directory is a simple, monolithic answer to a complex, heterogeneous problem.

So far, most users think it's the wrong answer.

PIMM FOX

Ariba Buyout of Agile May Aid IT on B2B

Ariba says Agile Software's collaborative commerce expertise is the primary reason it's paying \$2.4 billion to buy Agile.

Collaborative commerce, or e-commerce, is a new iteration of B2B in which personnel, business partners and customers come together across several business processes to ease information flow.

It will also spur B2B industry consolidation, which can't happen quickly enough. By next year, according to Gartner Group, there will be more than 3,000 B2B marketplaces. About 5% will make it, Gartner says; another 15% will be acquired or will merge, and the rest — well, RIP.

Ariba's purchase should begin a chain of events to help users sort through all of the e-business products on the market.

And despite the business school notion that consolidation is bad for technological innovation and will increase prices, it's time for some severe rationalization.

The lure to streamline purchasing, simplify product changes and integrate back-end systems with new Web-enabled front ends looks fabulous in a PowerPoint presentation or at an industry conference. But in reality, the prospect of streamlining it all looks chaotic.

"There are so many things out there: ERP, supply-chain execution, warehouse management systems," says Karen Peterson, research director at Gartner. "If someone tries to sell one more thing, it is a huge challenge for companies' IT departments to implement. Everyone is looking for one thread to choke."

That's a natural response, given the trend over the past four years.

Having evolved from static supply-chain planning applications to order-execution applications, then to full software suites that offer integration with transportation-management systems, B2B marketplaces are morphing into e-commerce operations.

And as the Internet and e-commerce come together, a bout of collaborative interfaces and products, such as Common Object Request Broker Architecture and Component Object Model, have made selection more — not less — difficult.

There are no e-commerce market leaders, and most collaborative commerce still centers on electronic procurement for product development and product life cycle processes. But this will change as e-commerce makes inroads with traditional manufacturing companies. Robust commerce networks will permit easier connections to supply-



PIMM FOX is Computerworld's West Coast bureau chief. Contact him at pfox@computerworld.com.

NEWSOPINION

chain management systems and more standards.

Yet this is still a dream.

"I'm not convinced vendors can drive standards, which means you still have these different solutions to wade through," says Peterson.

Public exchanges like i2 Technologies' Trade Matrix (for supply-chain collaboration) and my-SAP.com's Marketplace (for business application integration), as well as private exchanges, represent different e-commerce products. Anything that simplifies varying approaches will help IT organizations map coherent e-business strategies. Having "one throat to choke" at least assigns responsibility for the best e-commerce scenario.

So, by acquiring Agile, Arista is squarely in position to exploit this new market. At the very least, it means one less vendor to sort through. ■

ALLAN E. ALTER

IT Faces Emerging Global Agenda

BUSINESS IT'S first half-century began in London and Louisville, Ky., where the first business computers were installed. The second half-century began last month in Davos, Switzerland, at the annual World Economic Forum.

IT professionals pay little attention to the global economic issues discussed by heads of state and corporate chairmen at the forum. But we should. IT was at the top of the agenda at Davos; these leaders recognize IT's importance, and they will set priorities that will create new opportunities for IT. In their minds, there is more to the global IT agenda than tapping IT talent outside the U.S., running global networks and creating Web sites with international appeal.

The theme of this year's Davos conference —



ALLAN E. ALTER, a former Computerworld editor, is director of new market development at the MIT Sloan Management Review. Contact him at alter@mit.edu.

"Sustaining Growth and Bridging the Divides: A Framework for Our Global Future" — sums up the emerging agenda. The divide is the gap between the technology haves in the developed world and the have-nots in the developing world. Sustainable growth refers both to creating conditions that favor continued economic growth and a healthy environment.

This is lofty stuff, so let's pause to ask some cynical questions: Isn't this high-minded talk just posturing by rich industrialists and politicians? Is it really possible to bridge the divide or to create an ecologically sustainable economy? The answers are yes to the first question, no to the second. Most of the developing world is eager to grow and participate in world markets and fearful of falling further behind in the realm of technology. In turn, these countries represent too large a

potential market for multinational corporations to ignore. As Carly Fiorina, chairwoman and CEO of Hewlett-Packard, said at Davos about bridging the digital divide, "This is about good business as much as it is about philanthropy."

It isn't difficult to see what it will take to cross the divide. The key ingredients, say experts, are access to technology, education and entrepreneurship. Government policies can help, but corporations can move this agenda along, too. For example, one of South Africa's largest banks, Absa, recently announced that it would provide free Internet access to the public, launch a drive to move procurement online and train its staff to use the Web. Innovation is another ingredient, according to C.K. Prahalad, a leading management thinker turned Silicon Valley entrepreneur. The bottom of the economic pyramid, he told a business audience in Mumbai, India, last year, represents an immense opportunity for companies to rethink products, price strategies and distribution channels. His advice: "Find the connection between the very poor, sustainable de-

velopment, the Internet and innovation."

Innovative thinking is also the key to creating businesses that are both profitable and environmentally sustainable. For example, companies that sell products that just wind up in landfills can become service companies that recycle products. For Dow Chemical, it means that instead of selling solvents, the company leases "disassembling services," then reuses the solvents, writes Peter Senge in the current issue of the *MIT Sloan Management Journal*.

The IT connection to all of this is enormous. It ranges from creating low-cost communications services and computer products to building networks and applications that support telemedicine, organizational and distance learning, environmentally sound business practices, and financial services for entrepreneurs in poor countries and neighborhoods. We can offer not just our enthusiasm and innovative thinking, as fellow *Computerworld* columnist Frank Hayes noted (Back Page, Jan. 29), we can also offer the hard-won lessons learned during the first 50 years of business IT. ■

READERS' LETTERS

Snooping Report Just Part of Considerations

I HAVE JUST REEM read-
ing your report "Brit Accuses U.S. of
Snooping" (Page One, Jan. 29). Thank you for giving coverage to our inquiries.

European Parliament
early next September
will you be able to speak
about Europe admitting that or proposing that.

Moreover, by using selected quotations from Neil McCormick's letter, you tradeuce to a certain extent the state of his statement. He did, moreover, indicate to you that the committee would be willing to hear from current or former intelligence officials or spokespersons from private companies used in your article, if they consider that they have something to tell us about this issue.

We intend to produce a factually accurate and balanced report that places the controversy in its proper context. I understand your interest in this matter and welcome comments on our work, but please recognize that this

is a serious issue for the parliament and it does us a disservice if allegations are treated as facts before they are assessed.

David Lowe
Head of secretariat
Ethelton Committee
European Parliament
Brussels

Secure and Secure!

I AGREE completely with Patricia Keefe ("Wake Up!" News Opinion, Jan. 15), but I would add two things: D The most secure computer is one not connected to any network, whether the computer is a dial-up laptop in a non-connected state or a simple desktop programmed to run the lawn sprinklers of a golf course. (A greenkeeper actually asked me if a hacker would be able to start a flood after I configured a specialized MS/DOS-only system for him.)

2) The second most secure computer is one on an isolated network similar to those of the big companies of yesterday.

Bill Becker
Santa Clara, Calif.

Learning the SAP Way

THE NAVY would do well to examine companies that have deployed SAP to handle supply chains ("Navy Embarks on SAP-Based Supply Chain Mission," Computerworld.com, Jan. 10). Most successes have come from the company molding its way of doing things to the way SAP does things, not the other way around. Otherwise, the costs go up, the time line extends and often the result is to just stop the project.

Roger Erikson
Independent consultant
Wentzville, Ohio
rogererikson@ymail.com

Who's to Blame?

THE ARTICLE "Six Plaintiffs Join \$5 Billion Discrimination Suit Against Microsoft" (Computerworld.com, Jan. 3) irresponsibly blames Microsoft for failures in our society. Some among the six com-

plainants suing Microsoft may have been the victims of bigoted supervisors. If so, the supervisors should be fired and the former employees should be compensated, not to the tune of hundreds of millions of dollars.

Chuck Stein
Spokane, Wash.

COMPUTERWORLD welcomes comments from its readers.

Letters will be edited for brevity and clarity. They should be addressed to James Eddy, letters editor, Computerworld, P.O. Box 9711, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4043. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

DAVID FOOTE

What's Your 'Emotional Intelligence'?

THE RULES OF WORK are changing, and it couldn't be more obvious than in the new yardsticks by which modern workers are being judged. Sure, we're still being measured by how



DAVID FOOTE is managing partner and research director at Foote Partners, ILC, an IT workforce management research firm and organization development consultant. He can be reached at foote@footepartners.com.

established a chairman of ethics after a decade of aggressively infusing ethical discussion into coursework. Kenneth Alpern, recently appointed professor of ethics and the chair's occupant, teaches students that ethical issues aren't simply about right and wrong but also about "making tough choices in a brutal world."

Among the theories he espouses is the notion that the more people can experience things from different points of view (such as working in a soup kitchen to understand the poor as human beings), or read the writings of those they disagree with to understand the authors' perspectives, the more effective they'll be in their professions. Visualize Gordon Gekko sharing tea with Gandhi.

"Emotional intelligence," or EQ, is a popular construct that's being employed by companies to promote character in the workplace. EQ has two components: intrapersonal intelligence and interpersonal intelligence. Intrapersonal intelligence enables us to make sense of the interrelationships between our thoughts, actions and feelings. Interpersonal intelligence, on the other hand, enables us to tune in to other people, empathize and communicate clearly with them, inspire and motivate them, and understand relationships.

Like its counterpart, IQ, EQ can be tested, measured and incorporated into the workplace in productive ways. A West Coast communications company recently used EQ techniques to qualify managers to help workers deal with personal problems that were hindering team performance.

Other examples of using emotional intelligence include the following:

■ **Smart we are, or by our training and expertise.** But have you noticed that character — how we handle ourselves and others, and even our ethical values — now counts more, especially in recruitment and promotion decisions?

Educational institutions — even those not tied to religious denominations — have been paying more attention to character. Hiram College, a small liberal arts school in the Midwest, this year

■ **Recruitment.** EQ measurement is invaluable in selecting and recruiting "desirable, high-performance" workers.

■ **Predicting performance.** Some companies are blending IQ testing with scientific measurement of EQ to predict job performance and direct workers to jobs where they are more likely to succeed.

■ **Negotiation.** Whether you're dealing with a trading partner, competitor, customer or colleague, being able to empathize and be creative in finding win-win solutions will consistently pay off.

■ **Performance management.** 360-degree feedback is a common tool for assessing EQ. Knowing how your self-perception compares with others' views about your performance provides focus for career development and positive behavioral changes.

■ **Poor relationships.** Good networking skills are a staple of job effectiveness for the average IT worker. Networking has too often been associated with "using" other people, but a heightened EQ ensures a mutually beneficial approach to others.

If teams, departments and individuals at your company are too often locked into conflict or, worse, acting disaffected, bored and unmotivated, exploring EQ may be worth your time.

Remaining optimistic during tough times — be it troubled projects or major economic downturns — is a sign of high emotional intelligence and a quality that few organizations can afford to be without. ■

THORNTON MAY

A Solution to Stale Thoughts: Just Burn 'em

“**C**ARGO” refers to the physical goods loaded into the holds of ships, trucks or any other freight-bearing vehicle. You can choose what's allowed in the cargo hold, and where and when it will be emptied.

Unfortunately, the mental cargo — the mind-sets, norms and behaviors — that contemporary executives bring to their workplaces doesn't benefit from similar acts of replenishment. We rarely refresh our mental cargoes. A sizable portion of the mental cargo that senior executives bring to work with them every morning is dysfunctional, having gone long past its safe “think-by” date. These stale modes of thinking destroy value and get in the way of conceptualizing, creating and operating the type of enterprise the digital economy requires. Classic examples of dysfunctional mental



THORNTON MAY is a corporate educator and chief executive officer at Thornton May, Inc., in Webster, Mass. Contact him at thornton@thorntonsmay.com.

cargo would be the annual IT budget process, performance reviews and audits masquerading as meaningful reviews of digital security and privacy.

Eighteenth-century poet Edward Young complained about behavioral plagiarism: “Born Originals, how comes it to pass that we die Copies?” I fear Young is on to something. In a world most of us believe requires creative and innovative thinking, how is it we live in an age of copies? Where do these bad workplace behaviors/in-need-of-being-jettisoned mental cargoes come from? The answer is they don't come from anywhere; they were there when the current occupants arrived. “Copy” executives perpetuate patterns established by long-gone innovators. The least-changed/most-loathed functional area is probably human resources. Executives today have to live the life of originals. We hear a great deal about corporations reinventing themselves. Have the disciplines that make up corporations done the same? Have you?

Think of corporate America as a kind of Darwinian Galapagos Islands for executive speculation. Ask yourself: Would a de Tocqueville-observant visitor to corporate America report that most of the behaviors — such as employees' jobs and how they do them — found in the various disciplines that make up the “new millennium” corporation have truly changed, and have evolved from their aboriginal form? Is the post-Internet chief information security officer really different from his pre-Web ancestor?

Last year, I participated in a 16-week research program in Silicon Valley co-sponsored by the Ericsson Business Academy and the University of California at Berkeley. One of the behavioral norms we observed was the “elevator speech,” so labeled because of its compressed duration and lack of preparation. The classic elevator speech is the pitch that a youthful, high-energy possessor of the next great idea would deliver in two and a half minutes to a venture capitalist with the intention of obtaining funding. What if a board of directors was to confront its vice presidents and ask them to detail how their job responsibilities and their performance of activities associated with their jobs have changed since 1999? Since 1997? 1990?

What kind of response would the board get?

And for fairness' sake, let's turn this “Have you evolved?” question around and point it at the board. Does the post-Internet board of directors at a Global 2000 company look and act differently than its pre-Web cousin? Should it? Part of the research done last year focused on how boards of directors in Silicon Valley — a.k.a. the dot-coms — were different from boards at more traditional brick-and-mortar companies. Dot-com boards are good at starting fresh, or being “originals,” while many executives at traditional companies have to take their mental cargo and burn it.

In 18th-century New England, a town would hold a “bush” in which everyone would periodically turn out to make a bonfire of everything old, outworn and discarded. Boards of directors and the management teams they direct might want to do the same. So, burn and learn! ■

just supplier could be holding
four aces. Then again,
it could be a pair of threes.



sas

BUSINESS

CHILD PRIVACY SAFEGUARDS

The Federal Trade Commission recently gave unanimous approval to self-regulatory guidelines aimed at protecting children's privacy on the Internet. » **32**

LOSING BATTLES

Users are often quick to point the blame at vendors if a technology project goes awry. But Reed Simpson, a vice president at Computer/Legal Consultants, says companies that sue sometimes lose their cases before they even get to court. » **32**

EYE ON STORAGE

Storage hardware might not sound very exciting, writes Peter G.W. Keen, but it's rapidly becoming the single most important element of e-business innovation. » **33**

SWEET SOMETHINGS

At See's Candies' headquarters in San Francisco, the IT department is located directly above the peanut brittle manufacturing area. So even when workers are putting in long hours to support the Valentine's Day rush, the sweet aroma provides them with a little extra push to make it through the day. » **33**

MOVING ON UP

IT workers are more willing to pack up and move on to a new company to advance their careers. But

a career like that of David Thompson, who went from distributor of reports to networking systems manager at Pier 1 Imports, shows that companies that provide opportunities retain motivated workers. » **38**

MONEY TALKS

How much should you pay in bonuses to members of an IT team? Four experts on team authority and compensation share their thoughts. » **40**

STEP ASIDE FOR THE BIG BOYS

Dot-coms may be going belly-up these days, but that's not stopping corporate giants like Dow Corning and Merrill Lynch from jumping into the e-business fray. Just as some New Economy players are dropping out of the race, several Old Economy spin-offs are about to hatch. » **42**

FOREIGN MATTERS

U.S. companies are increasingly setting up shop in foreign countries to take advantage of available labor. But some markets are clearly better than others. » **44**

COMPLEX EXCHANGES

With the goal of cutting costs, time and waste for companies of all sizes, online marketplaces are turning out to be big business in just about every industry. » **48**

MORE

Advice **46**



GETTING A GRIP ON E-RISK

CORPORATIONS ARE AWARE that there are risks in e-business, but gauging them is another matter. Business risk managers are only beginning to develop some early standards and metrics that will ultimately make it easier for business leaders to get their arms around e-business risk. As they do, insurers will be watching.

34

FTC OKs Self-Regulation to Protect Children's Privacy

Parental approval vital part of guidelines

BY JENNIFER DABABIN

THE GOVERNMENT recently approved the first self-regulatory guidelines for protecting children's privacy on the Web.

The Federal Trade Commission (FTC) on Feb. 1 unani-

mously granted the first "safe harbor" guidelines to ensure compliance with the Children's Online Privacy Protection Act, which was passed by Congress in 1998.

The act requires the operators of Web sites geared toward children to post privacy

polices on their sites, notify parents about the information they're gathering and obtain parental consent before collecting personal information from children under 13.

The act also provides for the establishment of self-regulatory programs. To set up a safe harbor, businesses and trade groups must propose guidelines to the FTC. If the guidelines are ap-

proved, they're considered "safe" and in compliance with the rule. Web site operators can then use them as models for their own operations.

Evolving Proposal

The guidelines approved by the FTC were proposed by the Arlington, Va.-based Council of Better Business Bureaus' Children's Advertising Review Unit, a separate arm

of the advertising industry's self-regulatory program.

The Children's Advertising Review Unit has been around for almost 30 years. But the organization's guidelines weren't strong enough at first to protect children on the Internet, said Jason Callett, president of bunkhustlers Corp., a Green Brook, N.J.-based privacy advocacy group.

"They revised the proposal, and then we supported it because it seemed to be stronger than what the FTC's rule-making required," Callett said.

The Center for Media Education (CME), a Washington-based national watchdog group focused on electronic media for children, also expressed reservations about the original Children's Advertising Review Unit proposal to the FTC. But according to CME officials, the group is satisfied with the revisions.

In 1998, the FTC surveyed 212 Web sites directed toward children and found that 46% of them didn't include any disclosure of their collection and use of personal information, despite the fact that 89% of the sites collected one or more types of personal information from children. ■

Military Bank Salutes Savings From Customer Query Tool

Company marches forward with new e-mail routing and management system

BY MARC L. SORINIS

A few years ago, Bank of America's military subsidiary set out to cut costs by answering customer queries via e-mail. The problem, however, was finding a system that could handle the sensitive customer data securely.

The bank next month plans

to launch an online customer relationship management (CRM) system with Atlanta-based WebTone Technologies Inc. after two years of development, according to Tom Shaw, senior vice president of the San Antonio-based Bank of America Military Bank. The bank has branches on military bases in the U.S. and around the world.

Now in beta testing, the new system — an e-mail routing and management tool for customer queries — will reduce response times from three or four minutes on average to less than a minute, Shaw estimated. And with more customers accessing the bank via e-mail, the system could reap savings of hundreds of thousands of dollars that are now being spent on incoming global calls to the company's toll-free number, Shaw said.

Customer service representatives will now be able to access information gathered from other departments. And the e-mail channel could allow representatives to double the amount of inquiries they handle each day, from about 300 to 200, Shaw said, depending on the types of inquiries.

This summer, the military bank plans to launch a secure e-mail and electronic-messaging campaign management system, said Shaw.

■ Bank customers log on to the system via a Web browser and fill out preset e-mail forms to launch their queries.

■ These forms contain the customer's ID, check number and other pertinent information.

■ The system views the data and routes the e-mail to a customer service representative based on the importance of the customer to the bank and the relative importance of the query.

■ E-mail queries that don't fit into a pre-existing category are sent to an artificial intelligence engine, which forwards them to the most appropriate representative.

Bank of America Corp., the military bank's \$45 billion parent company, has undertaken several e-business-related ventures in recent years. The Charlotte, N.C.-based bank boasts 3 million online customers.

The move to a Web-based CRM system is a must for financial firms like Bank of America, said Valerie Roy, a

senior analyst at TowerGroup, a Needham, Mass.-based consultancy. More and more banks are adopting systems like this one, with some level of automation for handling things like e-mail-based customer queries.

The key, she added, is ensuring that the different CRM systems are all aligned so "the customer doesn't get lost." ■

Making a Case: Lawsuits Make Failed Projects Worse

Lawsuits often follow failed IT projects. But before choosing to sue, plaintiffs tend to call in professional expert witnesses to pass through the project remains and figure out whether there's a good case, according to Reed Simpson, vice president of Computer/Legal Consultants Inc. in Harrison, Idaho.

Computerworld's Kim S. Nash recently talked with Simpson, a 35-year IT veteran, about how user companies can lose cases before they even get to court.

Q: What happens when you come in, after the user or the vendor decides to sue?

A: I have to determine if there's enough blame that can be

passed around and whether it can be documented. I have to be able to advise [user companies] about how vulnerable they are.

Q: Vulnerable? How so?
A: Sometimes, simply because a company doesn't keep records of the dispute as it progresses. In other cases, they are as much to blame as the people they're blaming it on.

When it gets to the point where they will sue, then top management is involved and has been told certain things. And most likely, they have direct involvement in the project. It's not unusual for me to find out that the people who told top management things

are trying to hide the facts and blame the problems on someone else.

Q: What's your best advice on how users can avoid getting themselves up for lawsuits?

A: No. 1, if you're going to buy a software package, your first objective should be [to] find one that meets as many of your needs as possible — then don't change anything. Given that that's not always practical, if possible, you need to change your way of doing business to match the package. You wouldn't consider buying a new car, then two days later changing the engine or changing the wheels.

The vendors, because they always want to say "No problem," will always agree to change the package to the perceived needs of the [user] company. The company, because it always wants what it's used to, will ask the vendor to make changes. Both are at fault. The minute you cause a vendor to open that package and start making changes, you're in trouble. ■



REED SIMPSON
Simpson gets paid where it shouldn't.

BUSINESSOPINION

PETER G.W. KEEN

WORKSTYLES

See's: Where the Candy Is Homemade - And So Are the Apps

Interviewee: Greg Gibbons, MIS director

Company: See's Candies Inc., a subsidiary of Berkshire Hathaway Inc.

Main locations: South San Francisco, Calif., with about half of the IT department in Los Angeles, company has 215 retail stores, mainly on the West Coast

Number of IT employees: 17

Number of employees (end users): "About 6,000 employees, but a

lot of these are in manu-

facturing and the shops.

We support about 280

PC users and 300 termi-

nal users."

Trend: "I created the IT department here in 1994, but that's when with another Berkshire Hathaway company that provided IT to See's, so I've been involved with the company since 1985."

What kind of pressure does Valentine's Day put on IT as a candy company? "That's our biggest single revenue day of the year. In our retail shops, it's standing room only on [Feb.] 14, and there's also a peak lasting a few days for mail order and Web orders."

So systems availability and user support are huge for us. We have a huge, mature mail-order system that handles peak volume, and we look care of Web site scalability before Christmas, which is a longer sus-

tained peak."

IT initiatives: "We're evaluating a point-of-sale [POS] system. Right now, we're in the electronic components. About 30% of what we sell is hand-packed in the stores, and that doesn't lend itself to bar-coding, so a POS system is not a simple item for us. It will probably have to involve some kind of scale that prints out a bar-coded label [based on weight]."

"We also do some Web enhancements and some customer relationship management stuff that we'll build ourselves. We just went live with a Web application that lets online customers build their own box of candy. And we're moving over

to client/server and rewriting our legacy applications as we go along."

It sounds like you have a lot of homegrown systems for such a small IT staff.

"Our history has been to focus on homegrown applications, but now we're making a transition to a best-of-breed approach. We'll continue to build the things that differentiate us from our competition, like the Web site and order entry. But we recently brought in a packaged radio frequency-based warehouse management system."

Upcoming training: "Oracle, HTML, JavaScript and an object technology we use called OracleX from [Dynamic Information Systems Corp.]."

Workday: 8 a.m. to 4:30 p.m., "but we're flexible."

An eight-and-a-half-hour day? Reality? "We do a lot of after-hours support, and some weekend maintenance, database management and new systems rollouts. But things don't go bump in the night that often."

Dress code: "Casual on Fridays and business dress the rest of the time. We're heading toward business casual."

Kind of office: "It's located over the manufacturing area, so it smells good all the time. They make peanut brittle right under where we work."

Perks: Annual bonus program, company picnic in July, IT holiday party in December. "We're always going out for lunch together. See's is very family-oriented, so I can always make it to my kids' events. It's also a charitable company."

Would employees feel comfortable e-mailing the CEO, Charlie Huggins? "Well, he swings by here fairly often to say hi to the staff, and he and I meet fairly regularly to set priorities. He's very hands-on and has a keen awareness of how we use IT to differentiate ourselves. But he doesn't have e-mail."

— Leslie Goff
(lgoff@wic.netcom.com)

What It's Like
To Work at...

The Case for Storage

STORAGE HARDWARE is about as exciting to most IT and business managers as watching pet rocks sunbathe. But it's rapidly becoming the single most important element of e-business innovation.

Just look at your company's e-business infrastructure.

There's only one proprietary component: the enterprise customer data. Never put that at risk in terms of availability, security, ability to scale customer relationship management (CRM) systems, speed of access, backup and archiving, or server consolidation.

Almost every other platform component is now a commodity; a company can substitute one excellent vendor's products for another's — low-end and midrange servers, PCs and Internet hosting services, for example. Or a company has some wiggle room: It can call in systems integrators and C++/Java wizards, or build front-end links to legacy systems. This is by no means easy, but none of these areas is the "giant bottleneck" that storage is now.

Here's the problem for IT: For decades, storage has been handled as just an add-on to IT strategy and as JBOD — storage professionals' acronym for "just a bunch of disks." One colleague calls this the "aspirin" approach. Your doctor tells you, "You've got a fever? Take two aspirin and call me in the morning." Whoever handles JBOD purchases says, "Your data warehouse is exploding again? Buy two clusters and call back next month."

Even the network-attached storage vs. storage-area network (SAN) debates about how to best manage networked storage are typically handled in business terms, centering on such concerns as response times and operating costs. In IT, there's often a wide gap in thought and knowledge between network and storage professionals.

Try asking your best telecommunications experts about Fibre Channel or backup and archiving. Then talk to the storage people about IP-based SANs. In most instances, you'll see blank stares. Look at the network architecture plans. See if you can find the storage architecture plans. Good luck. Then look at your company's many CRM activities and see if there's any discussion of their implications for storage beyond "JBOD and 'aspirin.' Again, good luck. IT needs to raise the strategic discussion of

storage in the same way and to the same degree that telecommunications moved in the 1990s from cables and boxes to e-business architecture and in the same way that databases have moved from software to CRM.

Storage vendors and buyers need to build an entirely new dialogue.

In the JBOD world, vendors are box salespeople, and IT organizations are box buyers. Both are in a commodity transaction, not partners in enterprise storage strategy. The JBOD suppliers come in with feature lists, prices and service promises. That's fine for semicommodities such as low-end servers, PCs and Internet hosting. But it's inappropriate when the discussion is about the architecture for the firm's customer data resources or its e-business strategy and platform architecture — and recognizing the importance of never putting either at risk.

As the storage issue rises above JBOD, IT must redefine the vendor dialogue, and vice versa. Will EMC's powerful sales force and aggressive selling be the basis for your company's dialogue? Will Hitachi Data Systems' increasing dominance in pure technology and product leadership translate into architecture leadership? Will Sun be able to turn its e-business server strengths into comparable networked storage strengths? Until a year ago, \$3 of sales in servers meant \$1 of storage sales for Sun.

Now, it's the reverse. Dell, Compaq, Network Storage Solutions and Hewlett-Packard (which is mostly Hitachi with a different logo) all have good boxes.

Which will be the platform partner? For me, that's the next IT e-business agenda. Which would I choose? Probably Hitachi, because if my firm's customer data is my proprietary business edge, I want the best hardware. But don't take my word for it. IT professionals must have their own opinions, shaped in their companies' best interests. ■

IT needs to raise the strategic discussion of storage.



Keen is chairman of Keen Education and an author and consultant. His Web site is www.peterkeen.com and he can be reached at peter@peterkeen.com.

VEN WITH STRONG SECURITY e-business risk is a fact of life in today's interconnected business world. But the fundamental problem with managing this new form of business risk, say

IT managers, is that there are no metrics and no standards to measure the level of risk.

Nevertheless, your board of directors needs to see that those bits and bytes they call "just data" are really the corporation's lifeblood. And they must get their arms around the ultimate cost to the business if that data were lost, stolen or altered.

"We need to make a model where e-business risk is wrapped in the cost of doing business — like automobiles [that] transfer regulatory costs to the consumer," says Frank Reeder, who chairs both the computer system security and privacy advisory board at the U.S. Department of Commerce and the Center for Internet Security in Bethesda, Md.

But quantifying risk calls for statistics and benchmarks, things that are sorely lacking in this new era of e-business, says Paul Raines, head of global information risk management at Barclay's Capital, the investment division of Barclay's Group PLC in London.

Most risk models so far have been qualitative: Define your assets by classifying your data sensitivity; define your risks [for] theft, disaster, hacking. Then you evaluate your site against these risks," Raines says. "To develop a quantitative model, you need data to determine chance and frequency. The problem is, there hasn't been historical data to draw from. The equivalent of actuarial tables will help."

The amount of data gathered concerning e-business risk is nowhere near the amount gathered during 100-plus years of the automobile. But business risk managers are currently looking at e-business risk as another element of business risk. In so doing, they're developing some early standards and metrics that will ultimately make it easier for business leaders and IT managers to understand and evaluate e-business risk.

For starters, regulators and standards bodies are developing best practice guidelines for information security, a crucial first step in building a framework for metrics. Insurers are selling e-business security and liability insurance, so they're already attaching a price to some risks. Private incident-response centers are gathering and publishing statistical data on the frequency of certain events that could expose risk. And internal auditors are beginning to define e-business risk for their boards of directors.

Managing risk starts with security

Corporations are aware of some of the risks of e-business. But they're only beginning to discover ways to measure those risks.

By Deborah Radcliff

standards and best practices, says Mark Rasch, vice president of cyberlaw and global integrity at Predictive Systems Inc., an e-business services company in New York.

And IT managers shouldn't have any trouble finding security standards anymore. For example, the Bethesda, Md.-based IT education group SANS Institute and a new nonprofit standards group, e-Security.org, are collecting data on best practices and publishing a growing set of guidelines that identi-

fies the following as top-level risk areas: connected computers on the other side of the Internet (such as Web sites and business partners) and the integrity of the information on a Web site and its impact on corporate reputation.

And last month, the International Organization for Standardization approved a security standard that grew out of one used in Britain. This new standard includes a certification program in the areas of policy, asset classi-



Calculate

fication, allocation of security resources and responsibilities, systems and network security, government compliance, physical security, employee training and awareness and access controls.

Visa International Inc. in Foster City, Calif., and American Express Co. in New York are also throwing their weight into security standards by making them mandatory for their electronic merchants. Their requirements are a little broader, encompassing mostly server-side credit card processing and storage, access controls and encrypted tunnels. Analysts say these efforts will go a long way toward setting up future risk frameworks in the business-to-consumer market.

"I consider the reach of Visa much stronger than any government agency or security company, because credit companies can say, 'If you don't follow our security policies, you can't process our cards,'" says Pete Lindstrom, an analyst at Boston-based Hurwitz Group Inc.

THE QUEST FOR DATA

One of the best places to begin looking for data and metrics is the insurance industry. A handful of business insurers, including The Fidelity and Deposit Cos. in Baltimore and American International Group Inc. (AIG) in New York have already started insuring against e-business risk and building actuarial tables.

AIG, for example, offers three areas of risk insurance: The first, says underwriting director Matthew Berman, is media liability (overexposure of information on the Web site), which covers \$500,000 in losses with premiums starting at \$3,000. For 1 to 3 cents over every dollar of coverage, AIG also offers network security insurance against hackers, business interruption, theft of intellectual property and downstream liability. The average coverage is \$1

million. A third program insures professional services like Internet service providers and data management centers for similar premiums.

But e-business insurance program managers at AIG and Fidelity and Deposit say they don't yet have metrics for frequency, cost and probability because they've had no claims. Nor do they have a lot of customer data or actuary information. Each of these

two insurers has fewer than 50 e-business risk customers. And the actuarial tables for those clients are all custom-made.

"These insurance products are so new, the \$64,000 question is: Are we charging the right premium for the exposure?" says Dave O'Neill, vice president of e-business solutions at Fidelity and Deposit.

Governance, research and private-sector incident-reporting centers are also filling databases with information that's quickly growing large enough to detect trends and probabilities, according to Rasch, whose company manages information sharing and analysis centers (ISACs) for Japan and the financial services industry. ISACs are privately owned security incident reporting centers spawned by the educational efforts of the federal Critical Infrastructure Assurance Office (CIAO) (Business, Jan. 21).

Businesses and educational groups are also gathering statistics and crunching numbers. The CERT Coordination Center at Carnegie Mellon University in Pittsburgh, for example, says 15,677 incidents were reported last year, an increase from 9,897 in 1999.

NEW BUSINESS NEW RISK

Businesses companies look at these factors, among others, to assess a business risk:

- Electronic publishing liability
- Property damage
- Business interruption
- Damage to reputation
- Restoration costs
- Intellectual property loss
- Business license loss
- Extortion

SOURCE: THE FIDELITY AND DEPOSIT COMPANY OF AMERICA, NATIONAL GROUP INC., NEW YORK

And these incident reports could be mined for deeper statistical data.

But organizations like the CIAO aren't waiting for hard statistics to catch up with perceived risk. They're already taking the concept of e-business risk to their boards.

"Historically, corporations have developed a set of business-risk approaches — insurance, auditing, financial controls and other risk management techniques — to protect their business assets," says Jeffrey Hunker, outgoing senior director of critical infrastructure protection efforts at the National Security Council.

"It's a cliché, but the most important assets today are all information assets, and this information is all on networks. Boards of directors for the most part don't understand that that's the risk to business right now."

The CIAO's outreach to the audit community has been helpful in driving the message of e-business risk up to various boards of directors.

For example, Jackie Wagner, general auditor at General Motors Corp., attended a CIAO meeting last April and brought along the chairman of GM's audit committee, Dennis Weatherstone, former CEO and chairman of J.P. Morgan & Co. When Weatherstone returned to GM, he brought the automaker's CFO into the boardroom to update the board of directors on system security.

"The audit committee and the board asked a lot of questions. All were about our level of risk and how we're addressing it," says Wagner. (Specifically, she notes, the board asked how GM drives accountability beyond the IT organization in managing exposure to risk.) Wagner says the board was happy with GM's security controls.

The audit team hired Givens Yau, a Deloitte & Touche LLP consultant then stationed at GM, and placed him as director of GM's e-business. Yau then launched a series of company-wide powwow about risk.

"I pulled together resources from GM's audit services and mixed them with technical consultants. We put every risk we could think of on a board and created buckets of risk," he says.

These buckets include:

- E-business strategy: Alignment with existing strategy and marketing channels, marketplace and opportunity strengths; stakeholders (suppliers, customers, trading partners); and sponsorship.

- Business policy: regulations and customer data privacy.

■ End-to-end process/transaction flow

- Data management: integrity, availability and confidentiality of data stored in databases and in customer relationship management systems.

- Infrastructure: servers, firewalls, operating systems, routers and applications.

Yauh adds, "Once we put this list together, we found this framework was flexible enough to address other business units as they rolled out e-business initiatives."

In due time, all these data collected by auditors, insurers and emergency notification centers will become the foundation of new risk metrics systems. And time, say analysts, is the one thing that anyone developing risk metrics can count on.

"Only time and practice will allow us to get to a point where we can really be finite about whether we're looking at a \$10 or \$100 million e-business risk," says Doug Goodall, executive director of Red Leaf Secure Systems Inc., an IT security incubator and holding company in Pittsburgh. "That's where business judgment really needs to be applied."

KEEPING THE FAITH

FIRST UNION CORP., whose core business is trust, can't wait for outside interests to determine risk metrics. So last year, the Charlotte, N.C.-based bank implemented Phase 1 of a risk-compliance program by standardizing policy and tracking compliance.

"We wanted to make it possible whether it's risk, systems, software partners or appraisers," says Pat Hynes, manager of distributed computing at First Union's information security division.

Hynes' team started by assessing whether its published operating system security policy was being followed using commercial and home-written software agents that report the state of the operating systems.

The agents reported back that "the general state of our operating system-level security wasn't very good," Hynes says. "A lot of the system administrators didn't even know security was part of their job. So we put together a training class."

This compliance data is now used to chart measurements, which are routed to department heads and IT leaders with bullet points that say, "Here are the common risk areas and here are our concerns," he adds.

Hynes' next step: Develop similar measurements for compliance in network and applications and among employees.

— Deborah Radoff

ing RISK

IT'S FAST BECOMING AN AXIOM in the computer technology field that getting ahead requires getting around. The assumption is that anyone who wants to take charge of his career path, get promotions, move on to new projects and seize new opportunities must do so by hopping from company to company.

Employees who stay with one employer, we're told, are stuck working where that company wants them — usually stranded on the same old project team or trapped on a predefined career track.

But try telling that to David Thompson, who took a job at age 19 distributing reports at Pier 1 Imports Inc.'s information systems department. Eleven years later, he's a network systems manager at the company.

Thompson's path has been a striking combination of his own initiative and Pier 1's willingness to give him opportunities. And that, some say, is the formula for employee success: empowering employees to control their own career growth within the company.

IT managers say they agree that initiative can be encouraged but not created — employees like Thompson will take advantage of the opportunities you present. And you probably don't want your less-motivated employees moving into positions of high responsibility anyway.

With the motivated workers, IT managers say, you don't really have a choice: they will take charge of their careers, with or without you.

"Systems employees are very sophisticated consumers of the employment experience," says Margaret Schweitzer, director of human resources for information systems at Kraft Foods International Inc. in Northfield, Ill. "The harder you try to contain people, the more likely you are to lose them."

Opening Opportunities

Thompson began expressing an interest in moving up while he was a report runner, teaching himself about PCs and writing programs on the side. When an opening appeared in PC support, his manager recommended him for the spot and he got it.

A year and a half later, he applied for and got an internal position as liaison between end users and programmers. As Pier 1 rolled out its first LAN, Thompson strove to expand his duties further into that area so he could learn more about network implementation. Five years later, he got a chance to jump the fence into systems administration — a role he had long had his eye on — when he heard of an opening there. Eventually, when a managerial position opened up last fall, Thompson's boss remembered his expressed interest in managing and gave him the slot.

Fort Worth, Texas-based Pier 1 has just 129 IT workers, so internal job openings are rather finite, and Thompson has at times been forced to wait for his chances. But he says he knew they would be there. "I was not stifled in any way when I approached management about opportunities," he says.

Because of the limited size of the departments, efforts in establishing formal career tracks haven't proved viable at Pier 1, says Ginny Carroll, director of technology for information services.

But informal approaches work well. When a programmer asked Carroll about joining the electronic data interchange team, she sent him to talk with the relevant manager "to make sure that he knows that you're waiting for a chance," Carroll says. "So even if opportunities aren't there right now, people feel like they're being listened to."



PHOTO BY DALE ROBERTS

MANAGING OWN CAREER

Thinking of job-hopping to get that next advantage? Not so fast. The solution might be as simple as your own career planning and telling your employer you're being groomed for bigger things. By D

BUSINESS CAREERS

In some ways, it may be easier to advance at a smaller organization. As Carroll points out, "In a group of 129, it's pretty obvious where the opportunities are."

At 85,000-employee Cargill Inc. in Wayzata, Minn., it's a bit more difficult. "It's just a huge organization and is all over the place physically," says Lloyd Taylor, corporate vice president of IT at the agricultural, financial and industrial products conglomerate. "We have job postings like everybody else, but for [employees] to find out what's happening is difficult."

Of course, big companies such as Cargill have the advantage of offering career paths in any number of directions. It has long been standard thinking that IT workers need career ladder options other than managerial ones. And of course, to be effective, the purely technical paths must offer every financial and professional reward of the managerial track.

Steve Finnerty, CIO and senior vice president of information services at Kraft, offers the traditional managerial track. But he also allows IT workers to move into the business units. In fact, a current leader of Kraft's financial systems started in the IT group, went into the finance unit to support its applications and returned to work up to his current position.

"I encourage people to get broad experience and assignments that are just a bit over your head," Finnerty says.

Schweer speaks of it less as a career track and more as "stringing together meaningful employment experiences."

And sometimes, when you let an employee choose his path, he makes the wrong choice. "The biggest problem we've had is people we've moved into management who have decided they didn't like it," says Carroll. Her response is to change their titles back, but keep them at the higher pay scale.

It's not just managerial moves that fail to work out. Carroll recently sent a member of her call center staff with a Cobol background to a client/server training class. "We found out that he really didn't have the ability to do the data modeling and other conceptual tasks," she says. The difficulty is in letting people try and fail without sending the message to others that they'll be punished for giving it a shot, Carroll says.

Empowering, Supporting Employees

Increasingly, companies such as Kraft push the power directly to their employees' fingertips through the company intranet. Internal job listings, training courses and job skill assessments are all there. It's a regular company-run career counseling center, right on the desktop.

Just a couple of years ago, Kraft changed the way it posted job openings on its intranet. Instead of focusing on the skills or experience required for a job, the listings now describe the development opportunity the position offers. In other words, rather than asking "Are you right for this job?" the listings ask "Is this job right for you?"

Likewise, Kraft's employees are encouraged to view training choices as part of a continuum that fits into where they're going next in their employment journey. Employees say they love the chance to choose their own classes rather than just attend the ones the company deems necessary.

Pier 1 goes a step further, making sure that employees who receive training get some small projects on which to use their new skills, even if the projects aren't a normal part of their jobs. The company's intranet debuted a new feature at the start of this year that shows every current project, with time



“

The biggest problem we've had is people we've moved into management who have decided they didn't like it.

DENNY CARROLL, DIRECTOR OF TECHNOLOGY FOR INFORMATION SERVICES, PIER 1 IMPORTS

lines, documentation and even requests for proposals. Everyone in IT can see what's happening and what will be happening and consider whether it's something they'd like to be a part of.

The common sticking point about empowering employees arises at the pivot point of an employee's manager. Encouraging the worker's eye to wander to new projects inevitably snakes managers who would like to keep their teams intact.

Finnerty says managers should be made to see that everybody gains from mobility. "If everybody is playing ball, then people are moving across functional areas, so that I'm losing a great person, I'm getting a great person," he says.

The sound nice in the abstract but will hardly mollify the middle manager facing a gaping hole where a former go-getter has come and gone.

It's easier when the manager has forged a similar path within the company, says Carroll. Three-quarters of the 24 managers in Pier 1's IT department came from within the company's technical ranks, she says, and that makes them more accepting when a worker comes to them with a transfer request form.

"I've gotten wonderful feedback from managers saying, 'I'd hate to lose this person, but if it's for the best for Pier 1, I'll support it and be a reference,'" Carroll says.

"It's the employee's opportunity to make development happen," Schweer adds. "It's the manager's responsibility to facilitate that development."

Kraft puts its IT managers through leadership development training to make sure they have that attitude toward the employees working under them.

Schweer has a simple message for those IT managers. "Employees are gifts that you don't get to keep," she says. "You're always developing them for their next stage."

Bernstein is a freelance writer in Watertown, Mass.

YOUR CAREER

placement in your career?
It's as taking charge of
your employer it's time
to David Bernstein

Product Quicktake

Spotlight on TIBCO for Scalable e-Business Integration

TIBCO Software Inc. offers a full line of solutions for enterprise application integration (EAI), business-to-business integration (B2Bi) and portal infrastructure. TIBCO's modular e-business architecture allows customers to purchase software on an as-needed basis, though most purchase the entire suite at once. Advanced XML technology from the company's recent acquisition of Extensibility will be distributed across product lines. TIBCO's e-business solutions are used in a variety of vertical industries.

Product Descriptions

TIBCO's product lines — TIBCO ActiveEnterprise, TIBCO ActivePortal and TIBCO ActiveExchanges — integrates internal systems and processes, extends business processes and content through the Web and wireless portals and connects to businesses through B2Bs.

TIBCO ActiveEnterprise enables businesses to integrate their internal systems and processes. ActiveEnterprise includes the following:

- TIB/Rendezvous messaging software provides synchronous, asynchronous and transactional messaging.
- TIB/Message Broker provides rules-based transformation, adapters for connecting leading application, databases and network technologies to the enterprise infrastructure.
- TIB/Adapters provide off the shelf connectivity to TIBCO's infrastructure for a number of applications, databases and platforms.
- TIB/Integration Manager provides process automation and TIB/InConcert provides workflow management. Together they streamline processes by managing the execution of sequences of electronic tasks and by managing the workflow of people's tasks.

• TIB-Hawk provides remote system monitoring and management of hardware and software assets across LANs and WANs.

TIBCO ActivePortal extends systems and processes to customers, partners and employees through Web and wireless portals. TIBCO ActivePortal includes the following:

- TIB/PortalBuilder provides a development and run-time environment for creating portals. Through content and application integration, it provides secure, aggregated and personalized access to mission-critical data from real-time external and enterprise sources.
- TIB/AlertServer sends real-time alerts based on pre-defined events to wired and wireless devices.
- TIB/PortalPacks provide aggregation and distribution of content such as news and financial information, from sources including Reuters, S&P Comstock, BusinessWire and PR Newswire. They distribute information in real-time as HTML, XML or other customizable formats. These can be stand-alone, as part of a TIB/PortalBuilder and/or TIB/AlertServer deployment or in customized environments such as voice and wireless.
- TIB/CO.net is an outsourcing service for hosting TIBCO ActivePortal installations in a quick, reliable and scalable manner.

TIBCO ActiveExchange enables B2Bi and creates marketplaces and exchanges. Businesses can connect and collaborate with trading partners and suppliers of all sizes. ActiveExchange includes:

- TIB/BusinessConnect for automating interactions between the business system of companies. It provides full-partner management and can utilize an LDAP directory or database.
- TIB/BusinessPartner is distributed to medium



The insider's guide to e-business integration
www.ebizQ.net

TIBCO Software Inc. at a glance

Products: ActiveEnterprise, ActivePortal, ActiveExchange

Product types: Messaging, EAI, B2B Integration, Process Integration Portal Infrastructure

Address: 3165 Porter Drive
Palo Alto, Calif. 94304

Phone: (650) 846-1000

Web Site: www.TIBCO.com

Founded: 1997

Ownership: NASDAQ:TIBX

Company Revenue: FY 99: \$96.4M; FY 2000: \$25.2M

Total Employees: 1053

Total Employees in Service/Support: 268

Total Employees in R&D: 260

Number of installations: 1,000

sized partners and suppliers that do not have B2B servers to enable them to exchange documents with the TIBCO B2B server.

• TIB/BusinessExpress is a browser based application allowing small companies to participate in electronic document exchange over the Web. ActiveExchange provides B2B security including encryption and authentication. It supports leading standards and data formats including RosettaNet, XML, eXML, BizTalk, ebXML, EDI and VAN so businesses can interact with their partners across industries regardless of the B2B server their partners have deployed.

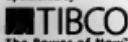
This piece was written by Beth Gold-Bernstein, vice president strategic services at ebizQ.

CUSTOMER FEEDBACK

Customers unanimously praise ActiveEnterprise for its scalability and the easy extensibility of applications created with the product. They characterize it as "industry-strength software that scales easily to handle tens of millions of hits." Customers also appreciate its event-triggered process automation and the ease with which it can incorporate new processes and data sources. They also like its range, which enables them to leverage integration from the enterprise to the portal.

TIBCO has a proven track record for providing fast and secure messaging and real-time data delivery to very large organizations. The company's software underlies some of the largest news feeds in the world to broadcast stock quotes, financial news, sport events and weather alerts.

Sponsored by:



The Power of Now

Produced by:



WE'VE BEEN CREATING E-COMPANIES SINCE E WAS JUST A VOWEL.



Want to be an e-company? Now? Then contact the people who've been creating e-companies longer than anyone. TIBCO. We provide complete e-business solutions for B2B, B2C, and beyond. In fact, our patented infrastructure integrates every application you have—and will ever have—into a single net-based solution. One that streamlines your processes, while strengthening your relationships with customers, suppliers, partners, and more. We've helped over 1000 companies leverage the Internet to deliver net profits in real time, including such powerhouses as Cisco, Vodafone, Sun, Arthur Andersen and SAP/Com. Because they've all seen the future. And it has an "e" in it.

www.tibco.com

Paying Teams Right

Project teams in IT have been around for years and are seen by managers as a critical way to develop applications for internal users or even to build new products for sale to the public.

Despite the widespread use of IT project teams, managers take different approaches to evaluating and motivating individual team members, especially when it comes to performance bonuses. Four experts in team evaluation and compensation gave Computerworld their opinions on how managers should reward IT team members.

RWARD HANDSOMELY

David Foote
Managing partner, Foote Partners LLC
New Canaan, Conn.
Also a Computerworld columnist



Individual team members should be given annual performance awards by their regular managers and also receive healthy bonuses for their team's performance on a given task, Foote says. For example, a worker named Jane might be eligible for her annual performance review, with a possible raise of 5% to 15%. If Jane is also on a team with a two-year project, the managers involved might agree up front to give her and each of the other team members 20% of each of their base salaries as a bonus at the end of the first year. At the end of the second year, they'd receive another 30% of their base, assuming project goals are met.

While that amount of bonuses may sound extraordinarily high, it could be justified if the project dramatically affects the company's performance, or

if the project team is building a product that launches the company into a new and important business.

Foote says he believes that milestones in the project should be set perhaps as often as every three months, and "if you miss a milestone, you don't get a portion of your bonus."

Foote says four phases — the work, design, building and implementation phases — need to be defined at points at which bonuses could be paid.

Part of the rationale for large bonuses is to keep key team members from leaving midway through a project, especially in such a fluid IT job market, Foote says. If a bonus isn't fair, team members will say so up front.

BIG BUCKS FOR BIG PROJECTS

Robert Zawacki
Professor emeritus, University of Colorado Boulder, Colo.

Big bonuses should be reserved for the biggest projects, which will sometimes have a major revenue or cost-saving impact on a corporation, Zawacki says.

For example, if a senior systems analyst who's making \$80,000 per year got a 20% bonus, it would be \$16,000.

"That bonus might work if the reward is not held off too long, or it might lose its effectiveness," he says. But Zawacki says he's concerned about how large project bonuses might sit with CEOs who don't want to get locked into major financial incentives.

"Setting project bonuses is an area where IT managers have to wing it with CEOs," Zawacki says. In a competitive world



When it's time to hand out bonuses to IT team members, how do you know how much to give? We asked four authorities how a manager can decide how much to reward. By Matt Hamblen

where IT workers are willing to leave to take new jobs, managers may need to convince CEOs that a project bonus might be one way to keep top workers.

Zawacki says team members need to be evaluated by managers outside of teams as well as those on the project. But could that result in a team that protects a nonperforming member?

That isn't likely, Zawacki says. "Everybody knows when a worker on a team is a poor performer," he says, using as an example a team he worked with at the former Digital Equipment Corp.

One worker said he was being picked on by his team members. The supervisor learned the worker wasn't sharing the workload, including carrying a beeper on the weekends. The worker was told to start carrying the beeper, when he didn't, he was fired.

"Don't apologize for high standards," even when subordinates are working on teams, Zawacki urges managers.

GIVING THE STAR TREATMENT

Allen Ditchfield
Systems consultant
Former CEO, The Progressive Corp.
Former vice president of IT, MCI Corp.

Bonuses for team members need to be variable to reward the top performers, those whom Ditchfield calls the "10X" performers who bring 10 times the creativity and quality to the work.

"Usually, you have to take care of the 10X guy," Ditchfield says. "With project stuff, it's not a communist process where everybody is trying to get the same shoes."

Still, 10% of a person's base pay for a

bonus might be enough. "I'd say that 20% to 40% of base pay sounds high," he says. But Ditchfield adds that he believes in psychic gratification as much as bonuses as a motivation for being on a team. "Team projects can be a status symbol," he says. "Everybody wants to be on the hot one, although, sure, you do have some who come to work and can't be motivated on team. Still, there are people who gravitate toward the high-risk areas."

Ditchfield says he also believes that managers outside of teams need to be in regular contact with their direct reports, even if they're on team duty. "If you are walking around and are involved, you'll pick up signals," he says.

AVOIDING THE GREED FACTOR

Mark Endry
CEO of J.D. Edwards & Co.
Enterprise software maker in Denver

Managers could put too much emphasis on team bonuses, Endry says, which can lead to jealousy among team members.

For example, if a global project involves 10 people worldwide but only eight people on the core team get milestone-based project bonuses, "people on the global team will start to talk," he says.

Noncash rewards could help with such disparities, Endry says. Such perks could include inviting top management to dinner with team members to help remind them how important the project is to the overall business.

Noncash incentives that work are more team-oriented, and "the quiet reward won't work as well as the visible ones that involve the team," Endry adds.

Such noncash rewards depend on the scope of a project and "can start with cake and cookies and certificates of recognition or sometimes sending the team to a baseball game, either with the family or alone," he says.

"One year we provided key members of a project an overnight in the mountains and a dinner with management" that reinforced how vital the project was to the company," Endry adds.

How do you tame an 800 lb. gorilla?

Get Maryville Technologies.

Infrastructure feels like an unmanageable beast? Let Maryville Technologies help you take control. We are a company that is trusted by our clients and technology partners to architect and deliver solutions that meet complex technology needs. For reliability, scalability and performance, get in touch with Maryville Technologies at www.maryville.com.

Maryville
TECHNOLOGIES
Enabling Enterprise Performance

100 50 10



For years, they were dismissed as too slow for the New Economy. But now, corporate giants are picking up the pace as lean start-ups begin to wear themselves out. By Melissa Solomon

FOR THE PAST FEW YEARS, traditional industry leaders have been trashed by little start-ups headed by lightning-quick wunderkinds. Corporations saddled down with bureaucracy can't keep pace with today's market, the free-wheeling New Economy players snickered as their market valuations soared.

But as those corporate giants waited for the go-ahead from their boards before stepping into the new age of business, the market became dramatically more profit-focused, and many of those whiz kids were handed their pink slips. Now, as the e-business upstarts burn themselves out, the dinosaurs of industry are making their moves. And from watching the mistakes of their younger counterparts, they learned that what they already knew still applies: Slow and steady wins the race.

"We went through a learning experience last year, as did everyone," says Neelhal Desai, director of e-business at Midland, Mich.-based The Dow Chemical Co. "People are back to thinking about these as longer-term hard work and not just fast return."

Call it the second coming of the Internet explosion. Or better yet, the revenge of the big boys.

Despite the declining market for technology start-ups, large corporations such as Dow, J.P. Morgan Chase & Co. and Merrill Lynch & Co. are jumping into the e-commerce fray by incubating companies from within. For many of them, it's a way to spark innovation from inside their walls, as well as gain a new means of income.

But e-commerce initiatives also bring with them new challenges for Old Economy players, such as fairly compensating and motivating employees of spin-off companies and keeping pace in the Internet economy.

"I think the corporations have now become engaged," says Desai. "I'm kind of bullish going forward."

Investing Ideas

Eileen Marckioni, fund manager at New York-based Merrill Lynch's Internal Venture Capital Fund, which was created in December to fund e-commerce start-ups based on ideas from employees, is just as enthusiastic. Merrill Lynch, she points out, has a \$2 billion annual IT budget, \$1.5 trillion in client assets and millions of households for market research.

"We have a lot of muscle we can put behind new companies," Marckioni says. "And a huge advantage is you already have this first large corporate client that can give the new company a huge jump."

For the most part, corporations don't seem to be focusing much on the burn-out rate among technology start-ups, because their own ventures aren't primarily profit-focused.

For instance, Dow created its startup, iVenturi, to fill a need within the company. The firm couldn't find a suitable hosting system to manage the workflow of its new business development projects, so it teamed with Campsin in San Francisco and Andersen Consulting (since renamed Accenture) in Chicago to create a company, with Dow as its first customer.

"We weren't in it for the quick IPO," says Desai. "We were in it for building sustainable businesses. And there's still a market for good business."

The "minor meltdown" in the Nas-

daq Stock Market "has put some pressure to get some funding from the outside" for new e-business ventures, he says. Dow also recognizes that there are no guarantees that iVenturi will succeed. So far, says Desai, it's on target with all of its productivity goals, having shipped its first product last month and compiled an impressive list of beta customers. But, he adds, "start-ups are struggling everywhere, and this one is no exception."

Desai declined to disclose iVenturi's profitability targets, but he did say that Dow is taking a macro view. Rather than just focusing on financial statements, Dow plans to look within its business units to determine how much money is being saved by using iVenturi.

In a worst-case scenario, Dow could always spin iVenturi back into the corporation, says Desai. But that's not even in the cards at this point, he adds, "because we're not an IT company at the end of the day."

Gold Rush or Fool's Gold?

Dinah Adkins, president of the National Business Incubation Association in Athens, Ohio, says the time is ripe for that kind of balanced view.

"It was very unrealistic," she says of the early "gold rush" days of the Internet. "Now it's unrealistic the other way. The truth lies somewhere in between."

Still, there's no guarantee that corporate ventures won't follow the lead of their failed independent peers.

"You can see more failures than suc-

LOOK, WHO' GAI

E-BUSINESSMANAGING

cesses," says Josh Lerner, professor of business administration at Harvard Business School in Cambridge, Mass. For instance, Lerner put together a case study four years ago on what was then considered one of the most successful corporate incubators, Xerox Technology Ventures, the venture capital arm of Stamford, Conn.-based Xerox Corp. It had a 70% rate of return over an eight-year period, he says.

But just after Lerner finished the case study, Xerox abolished the program because it found itself competing with the very companies it had created. When Xerox first spun out those ventures, they focused on areas that the parent company didn't consider strategic to its core business. But once commercial use of the Internet took off, Xerox moved into those areas and wound up being head-to-head with its start-ups, Lerner explains.

"It's almost inherent that there [are] going to be conflicts between the corporation and the spin-off," he says.

To succeed, Adkins says, corporations need to hire people who understand how to start and manage new companies. And they can't create unrealistic burdens in terms of bureaucracy, she adds.

If you don't learn to embrace new ideas, Adkins says, "you're dead meat."

Merrill Lynch's Innovation Council, a group of senior executives charged with keeping fresh ideas flowing within the investment bank, heeded that warning when it came up with the idea of the Internal Venture Capital Fund.

For proprietary reasons, Marckioni declined to identify the nature of the e-businesses that are being considered. But she did say that the group seeks ideas that are strategic to the company and fall within one of the following four categories: knowledge management, mobile technologies, online finance infrastructure and communications.

After just a few months, roughly 100 formal proposals have been submitted from employees around the world and have been winnowed down to a top-five list. Merrill Lynch plans to fund

three or four companies in the next six to nine months, says Marckioni.

Such activity still shocks Dow's Desai after more than a year. "It's just an amazing thing," he says. "Our group, the new e-business group at Dow, just came into existence in December '99. And it's been a ride."

"We're trying to inject this start-up mentality into the corporation," he adds. "And people are more receptive to that idea today than they were three to five years ago."

The idea seems to be catching on throughout corporate America. Last spring, New York-based LP Morgan earmarked \$1 billion for LabMorgan, a separate e-business unit designed to support ideas for online finance start-ups conceived by entrepreneurs inside

and outside the firm. And late last year, Pittsburgh-based Mellon Bank Corp. created MellonLab, centered around the same principle.

"It's a group of individuals who take embryonic ideas and incubate them," says Mellon CIO Allan P. Woods. Those people place very strict benchmarks on an idea, and [it] either passes these various benchmarks... or it's taken out to the back of the barn and it's shot," he says.

Risks and Rewards

Bank of America Corp. is in the midst of launching a start-up focusing on business-to-employee services. But the core e-commerce strategy of the Charlotte, N.C., firm is a partner with New Economy players that can offer value to the company's products and services, says Linda Mueller, a spokeswoman for the bank.

That's a wise strategy, says Benjamin Gomes-Casseres, director of the MBA program at the Graduate School of International Economics and Finance at Wellesley, Mass.

Based on Brandeis University and author of *The Alliance Revolution: The New Shape of Business Rivalry* (Harvard University Press, 1997), Old

Economy players still face enormous pressure to transform themselves, and New Economy companies have learned over the past year that they may not be able to survive without the resources and stability of the Old Economy stalwarts.

Incubating ideas from within is also a good way for corporations "to create an environment of experimentation," says Gomes-Casseres. But, he cautions, it isn't a profit-making strategy. "Don't do it for the money," he warns.

E-business career opportunities are options that many corporations can now add to their retention strategies.

At Merrill Lynch, employees can receive a reward of \$20,000 or more for ideas that get funded, and they're given a 26-week paid leave to help grow the new company. At the end of that period, they have the option of staying with Merrill Lynch or joining the start-up.

"So we've really reduced the risk," says Marckioni.

But, says Desai, if employees choose to go, the risks are still there. No promises are made that they'll have jobs if the ventures fail.

"We're not sure that that puts the appropriate fire in the belly if they can always go back to their day job," says Desai. ▀



S
INING

TAPPING FOREIGN SHORES



A growing number of U.S. firms are turning to foreign labor markets to help solve staffing shortages. Here's a look at some benefits and drawbacks to recruiting overseas.

By Kym Gilhooley

WHEN The Prudential Insurance Company of America decided to open a software development facility to reduce its dependence on service providers, the company set its sights on the Emerald Isle.

Like many large companies, Newark, N.J.-based Prudential identified Ireland, with its sophisticated telecommunications infrastructure, healthy business climate and educated technology workers, as a fertile landscape for conducting the business of IT.

Last summer, Prudential opened the Prumerica Systems Ireland Ltd. facility in Letterkenny in County Donegal, a location that was advantageous to the company because of its proximity to local technology institutes and its rural

setting, which the firm hoped would appeal to workers.

"Our strategy was to find a location in Ireland that had the infrastructure and the proximity to local institutes that would provide a steady stream of graduates," says Paul Carmody, managing director of Prumerica, which was launched last summer to support Prudential's Individual Financial Services sector. "There has been a steady flow of graduates out of County Donegal looking for work, and we thought that they would like the opportunity to return there."

U.S. companies like Prudential have long been exploring foreign markets to bolster their technology operations, but such activity has hit a fever pitch in recent years, as IT staff shortages have taken their toll.

The Search Is On

India, Ireland and Israel have received much attention as target markets for offshore facilities and IT outsourcing. But Mexico, Belize, the Philippines and, more recently, Romania and Russia are also attracting projects as IT talent searches intensify. In looking to foreign countries for IT help, companies face cultural hurdles, employment regulation issues and project management headaches, compounded by distance and language barriers.

However, such issues are by-products of doing business in a global economy and can be overcome with a little work and sensitivity, says M. Rajagopal, managing consultant at Daedalus Inc., an IT services and recruitment firm in Bangalore, India. "Cultural issues are inevitable across any two cultures, but they're not insurmountable," he says.

"Indian relationships tend to be closer even on the job, and the separation between professional and personal is not as demarcated as in the West," says Rajagopal. Another consideration, he says, is that Indian IT professionals tend to have much more generalized training and experience than their counterparts in the U.S., where specialization is emphasized.

Detroit-based General Motors Corp., which has sales and manufacturing facilities in Africa, the Asia-Pacific region,

Europe and Latin America, the recruiting strategy is to hire local nationals rather than bring in American workers. This approach has been a key factor in the success of IT operations in GM's facility in Rüsselsheim, Germany.

"In Germany, GM had problems when we sent Americans; they weren't really well-accepted," says Jackie Wolf, GM's global human resources director for information systems and services. "Germans have a real pride in craftsmanship and in their culture. Americans may come off with different levels of arrogance, and, frankly, we get labeled."

Wolf says personalization is essential to attracting good IT candidates because they have so many options. During a recent five-month search for a director to head the IT operations in GM's Japan offices, for example, Wolf and her team decided to go after a candidate working for a competitor. To win him, they had to deal delicately with the issue of loyalty.

"The personalization of process was critical, as it is in every instance," Wolf says. "In getting foreign candidates interested, we have to prove why they'd want to work for an American company. It comes down to the personal phone calls, culture-specific gifts and follow-up letters. We have to show them that they're extremely important to us."

It's often the little things that can make the difference when hiring IT workers in foreign countries, Carmody says. He and his team make a point of celebrating the diversity of the Prumerica workforce because he has been pulled from several countries to reach the company's goal of hiring 150 IT professionals by midyear.

"I had hired people with different religious practices and customs than are the norm in Letterkenny, so we posted a placard in the lobby that describes Christmas, Hanukkah, Kwanzaa, Ramadan, Russian Orthodox Christmas, St. Stephen's Day, Boxing Day and several other observances," says Carmody. "Many of the staff took the time to read it completely. It's been a subtle but effective tool for promoting diversity awareness." ■

Gilhooley is a freelance writer in Falmouth, Maine.

LANDS OF OPPORTUNITY

What makes a country a good offshore candidate? According to IDC analyst Cynthia Doyle, a country ideally needs to meet four main requirements:

- IT talent
- English fluency
- Solid telecommunications infrastructure
- Business experience with U.S. companies

Doyle says India is the only region that truly meets all four, thanks to its vast population, which translates into much larger IT labor numbers than in other regions. Instead, she says, has been popular for U.S. nationals relocating abroad, but the country's relatively small population hinders it somewhat. "Ireland definitely meets the English language requirement, has a solid infrastructure, strong government support and a fairly low cost base but doesn't have the vast pool of IT talent because of its [small] population," says Doyle. But "it's rapidly becoming a hub of Europe, thanks in part to the spread of e-commerce throughout Ireland."

One country that's rapidly gaining acceptance as a "near-shore" IT region is Mexico, Doyle says. "It's a relatively new market opportunity, rather like India was 20 years ago. Mexico has the same or similar time zones as U.S. companies, and it's just a few hours by plane. And the cost advantages are between 25% to 40% over U.S. contractors."

Other countries are getting attention, but many of them face significant hurdles, Doyle says. Russia, for example, "has a large population and a pool of IT talent, but they fall down on English, and there are serious infrastructure and political and economic stability issues," she says.

The same is true for Romania. The Philippines, meanwhile, "has the infrastructure but has political and social turmoil," Doyle says. "It's a great example of a country that's got enough IT talent but is almost shooting itself in the foot due to unrest."

- Kym Gilhooley

E-Marketplaces

DEFINITION

Electronic marketplaces use Web-based technology to exchange and route business documents among the disparate systems of multiple trading partners so they can buy and sell goods and services electronically.

BY LEE COPELAND GLADWIN

IN JUST ABOUT every industry — from automotive manufacturing to chemical production — an electronic marketplace has been created to handle the buying and selling of goods and services between manufacturers and suppliers. One common bond that unites these markets is the hope that the automation of exchange processes will dramatically cut time, cost and waste.

One thing's for sure: Such marketplaces are big business. Cambridge, Mass.-based Forrester Research Inc. estimates that trading in Web-based marketplaces accounted for \$25 billion in sales last year across 13 industries, including construction, aerospace and defense.

But while technology is a key enabler behind the scenes, one of the biggest challenges online market creators face is in translating paper-based processes to more efficient, electronic approaches.

For example, contracts that involve complex sourcing or parts designations may require detailed interaction between the buyer and seller outside of the e-marketplace. The buyer may even disclose engineering specifications, delivery timetables and other sensitive data to the marketplace's participants. But instead of shuffling purchase orders back and forth or faxing production schedules, various procurement steps can be handled electronically.

Several of these virtual bazaars have been founded by buyers.

A prime example of that is Covisint LLC, a business-to-business e-marketplace created by Ford Motor Co., General Motors Corp. and DaimlerChrysler AG last February. The automotive exchange could potentially handle more than \$240 billion in annual procurements of raw materials and vehicle parts by these manufacturers alone.

One-Stop Shopping

Before e-marketplaces began popping up last year, "buyers were tied to a single supplier or a handful of suppliers over tightly controlled exchanges," says Daniel Garretson, an analyst at Forrester Research. "Now, with e-marketplaces, they can do one-stop comparison shopping across thousands of suppliers and go to the best source in real time or near real time."

With a slowdown in vehicle sales predicted for this year due to the softening economy, the Big Three automakers have placed increased pressure on their 150,000 suppliers to reduce costs.

Detroit-based GM plans to reduce the average cost of processing a purchase order from \$100 to \$50 by using Covisint. The world's largest automaker spends more than \$80 billion in procurements each year, so even a minor improvement in how these activities are handled could save the company billions.

Most of the big automotive suppliers acknowledge that they'll work with Southfield, Mich.-based Covisint, but that

hasn't stopped them from creating e-marketplaces of their own. Johnson Controls Inc., a manufacturer of car parts and environmental systems in Milwaukee, plans to launch a design and collaboration exchange for its 600 suppliers next month.

Mike Suman, group vice president for e-business and marketing at Johnson Controls, says the company needed to replace its homegrown product development software with an online bidding process with suppliers and the management of design collaboration. E-commerce software from MatrixOne Inc. in Chelmsford, Mass., will form the bulk of the technology infrastructure.

Johnson Controls generated \$6.8 billion in revenue last year — or 40% of its \$16.4 billion in total sales — from contracts to build car interiors, seats and batteries for the Big Three.

But Suman says the company also works with nonautomotive customers and other automakers, like Volkswagen AG in Germany, that don't plan to join Covisint.

Dana Corp. is another major automotive supplier that's building a private e-marketplace. Officials say Dana is building its own exchange to handle purchasing transactions with its 86,000 suppliers. But the Toledo, Ohio-based drivetrain and piston-ring maker, which drummed up one-third of its \$13 billion-plus revenue from sales to Dearborn, Mich.-based Ford and Stuttgart, Germany-based DaimlerChrysler, will also work with Covisint.

Integration Quagmire

Perhaps the greatest technical challenge facing e-marketplaces is the need to integrate the various back-end systems of participants with the exchange platform.

To process transactions electronically, participants need a format for defining the data elements in documents such

as invoices and purchase orders. XML provides a common method for identifying what data fields contain, thereby making it easier to swap documents electronically. But as the e-commerce industry has grown, the number of flavors of XML has multiplied.

The top three e-commerce software vendors each use different XML vocabularies for defining data. Commerce One Inc. in Walnut Creek, Calif., uses Common Business Library (CBL); Ariba Inc. in Mountain View, Calif., uses eXML; and Oracle Corp. uses OAG XML.

Vocabulary Problems

Those differences can create problems when an e-marketplace must unite systems from hundreds or even thousands of trading partners. For example, one XML vocabulary may list the second line in an address

field as "Address 2," while a different XML vocabulary may assign "Apartment No." to that same field.

Covisint is being built using technology from Commerce One and Oracle, so it must contend with the CBL and OAG XML formats. In addition, the Big Three and most of their top suppliers also use electronic data interchange (EDI) systems for processing invoices and communications, adding yet another layer of confusion.

"The Web platform has to use XML to parse documents, but we also have a large customer base that's into the EDI infrastructure," says Bernie Malson, product marketing manager at Covisint. "They just got the EDI equation straightened out recently, and so we can't ask them to abandon it until we can prove that XML will work." ■



JOE AUER/DRIVING THE DEAL

Vendor Short-listing: The Long and Short

IMPLEMENTING A "ZONE OF CONSIDERATION" — or creating a short-list of potential vendors for a particular purchase — is a very important step in optimizing your IT procurement process. It normally occurs after potential vendor proposals have been evaluated. Other names for this step are "down-selecting" and "short-listing." Whatever name you use, this is where you engage in critical communications with would-be vendors. After your evaluation, you should notify the vendors about whether they are in or out — that is, whether or not they've made the shortlist and qualified for the zone of further consideration.

Vendors out of consideration need to be told that they're out, without completely eliminating them. Vendors still in consideration can be commended for their efforts thus far, as a goodwill gesture. But they must also be told that there's still competition and that they must sharpen their pencils. Your essential customer objectives at this point are to maintain flexibility, establish some negotiating power and keep your options open. A misspelling here will gather that they haven't made the cut but that you have some leverage.

For those vendors that are left out of the zone of consideration, a simple letter like this will do:

Thank you for your response to our [insert project name] request for [insert project name] proposals. Our project team has completed its evaluation of all potential vendor proposals. We concluded that our current requirements can be more completely met by other vendors. Accordingly, we will require no further information from you at this time.

This language notifies the vendor of its status, yet preserves your options by stating there's no need for further information at this time. Most savvy vendors will gather that they haven't made the cut but from getting the best possible deal.

still hold out some hope. Some will follow up with a phone call. Simply state that you haven't made a final decision. Preserving your options is paramount. Because some vendors that make it into the zone may be eliminated for various reasons, it could be necessary to move a previously eliminated vendor back into consideration.

If you eliminate a vendor and later have to plead with it to return to the discussion, you'll have little negotiating leverage. In fact, you may end up begging. That's not a pretty sight, and it could prevent you from getting the best possible deal.

Notifying those vendors that have qualified for the zone is easier, but it's also important to preserve your leverage and maintain a competitive environment. A letter puts things in writing and provides a formal notice. Here's the recommended text:

Thank you for your response to our [insert project name] request for [insert project name] proposals. Our project team has completed its evaluation of all potential vendor proposals. We concluded that your proposal may provide a solution capable of meeting our requirements. Obviously, this is subject to a closer evaluation of various aspects of your proposal, and to you satisfying any concerns we may have in this regard. Accordingly, we have placed you within our zone of consideration with the other potential suppliers believed capable.

We will be contacting you soon to arrange initial discussions of your proposal. Our objective will be to negotiate a mutually acceptable agreement. Please identify your negotiating team members, in-

cluding their names, titles and roles. To expedite negotiations, we request that you limit your team to four individuals and include decision-makers on the team.

Please understand that we reserve the right to award the contract to any potential supplier at any time, without further notice to you. There will be no best and final bidding rounds or discussions of other potential supplier deals for you to bid against.

Having your very best deal on the table at all times — and thinking constantly about ways to improve it — will serve you well during this time.

This type of letter commends vendors for their success but also reminds them that they haven't yet won the deal and need to remain competitive.

At this juncture, it's all about negotiating power and control. To be effective, communications to potential vendors must inform but, at the same time, preserve your leverage as they compete for your business. ♦

BRIEFS

Court to Review Judge's Comments

The U.S. District Court of Appeals last week set aside 60 minutes in the upcoming Microsoft Corp. antitrust appeals case to discuss "conduct of trial and extrajudicial statements" — namely, comments made by trial judge Thomas Penfield Jackson, who, since the trial has ended, has assumed Microsoft Chairman Bill Gates of having a "rogue" complex and has been company executives to drag down.

Jackson has accused Jackson in two separate briefs of being biased and has ruled that he be disqualified from any future proceedings. But the company didn't ask for oral argument time on Jackson's

conduct in the briefs.

The appeals judges also issued a schedule for oral arguments that reversed on earlier agreement. Microsoft, the U.S. Department of Justice and the 10 states involved in the case had asked for four and a half hours to argue the issues. But in last week's order, the judges increased the oral argument time to seven hours.

First arguments are scheduled for Feb. 26 and 27.

Bose Implements CRM System

Bose Corp., in Framingham, Mass., has implemented a customized sales management and customer service software system from Altitio Inc. In Boston, Altitio announced last week. The system performs hundreds of functions across a worldwide sales force, offering

sales personnel to track expense reports, retail promotions and displays, and inventory, according to information provided by the two companies.

NTT DoCoMo Moves Into U.S. Market

AT&T Wireless Group in Redwood, Calif., has signed a deal with NTT DoCoMo Inc. and Sony Computer Entertainment America Inc. to develop new network services and applications in the U.S. One application would allow AT&T Wireless' U.S. customers to use their wireless devices to play interactive games on Foster City, Calif.-based Sony's new PlayStation.

Tokyo-based NTT DoCoMo, the largest wireless service provider in Japan, recently bought 10% of the tracking stock for AT&T Wireless, AT&T Wireless, which is separat-

ing from parent AT&T Corp., has just announced a new Web site at www.attwimax.com.

U.S. Unemployment Rate Highest Since '99

The U.S. unemployment rate rose to 4.2% last month, the highest level since October 1999, according to figures recently released by the U.S. Department of Labor's Bureau of Labor Statistics. The number of jobless workers increased by about 300,000, to nearly 6 million.

Epiphany Hires Former Oracle Exec

Customer relationship management application vendor Epiphany Inc. in San Mateo, Calif., has hired former Oracle Corp. executive Roy Cambie

as its CIO to assume global responsibility for IT infrastructure, purchasing and facilities. Cambie, a veteran IT industry executive who also worked at Citibank, Charles Schwab Corp. and Wells Fargo & Co., was in charge of all systems technologies at Oracle.

E-Business and CRM Vendors Unite

E-business applications vendor FirePoint Inc. recently acquired Brightworks Inc., a provider of Web-based customer relationship management software. The price of the deal is \$8 million in cash and 2 million shares of common FirePoint stock, according to officials at Waltham, Mass.-based FirePoint, and San Jose-based Brightworks' customers are AT&T Wireless Corp., AAA National and Continental Airlines.



And here is a presentation of International Computer Negotiations Inc. (www.internationalcomputer.com), a Winter Park, Fla., consultancy that represents on behalf of its principals, ICN sponsor's CAUCUS: The Association of High Tech Acquisitions Professionals. Contact here at info@internationalcomputer.com.

CRM at the Speed of Light

Capturing and Keeping Customers in Internet Real Time



Sales Force Automation: The Purpose

What is then expected of successful sales force automation? Not just the standard increases in revenue and margin. With the success of the "intangibles measurement" methodology represented by the Balanced Scorecard, there are means for quantifying measurements of customer satisfaction and sales force effectiveness that complement increases in the bottom line, as tangible as those increases are.

Increased Revenue

Needless to say, this is the *ne plus ultra* result for SFA: improvement in the bottom line. But a gross increase is not a sufficient answer for SFA success. Just as important are the increases in revenue per salesperson and in the gross profit per year. If you have an increase of 100 percent in sales revenues but your cost of sales has increased, or it is strictly a result of your increased sales force, your SFA implementation failed.

Cost Reduction in Cost of Sales
 Interestingly, this is a key parameter for success in an SFA implementation. There is an enormous amount of time used by salespeople in coordination of their efforts, continuous, repetitive data entry, and often unsuccessful attempts to extract and interpret data without the tools to do so. Studies have been done that show that sales time to fulfill administrative functions is almost half of a salesperson's activity. By reducing the time engaged in these administrative or other non-sales-related efforts, the cost of sales is reduced.

Customer Retention Due to Company, Not Product or Service
 If your customers are happy, they stay with you, even if they are paying a bit more. Myer Emco, a very successful customer home theater and con-

sumer electronics equipment installer, puts a large amount of time into making sure their customers get excellent service. They probably are 10 to 15 percent more expensive than comparable retail equipment dealers in the Washington, D.C., metro area. However, they have a loyal clientele willing to pay the extra cost, simply because the level of personal service is so effective. It's not about the money, it's about the relationship with the company and, often, the relationship with particular salespeople within the company.

Sales Force Increasing Mobility

The Web is transforming as it creates the New Economy. Perhaps the best example is the increasing use of personal digital assistants (PDAs), such as the Palm or Blackberry's RIM for Internet access. Wireless applications companies are proliferating. Aether Technologies grew from 70 employees to more than 800 in a year, went public, started an acquisition binge, and then, after all this, in late 2000, announced proudly that they had their first customer! Wireless Web applications and Web/phone convergence are creating an unprecedented buzz in an IT world that is known for its loud buzzing. Just recently, Handspring, the creator of the Visor PDA, announced that the Visor would have an add-in module that would plug into the back of its unique PDA that would allow Visor to operate as a cell phone. The sales force is out of the office more often than ever — meeting customers, moving through airports, prospecting for leads on Broadway with their PDAs. This is making mobility a competitive issue, requiring effective competitive mobile tools, such as the Internet and the handhelds. Most CRM companies are moving quickly to establish wireless components for sales, such as SalesLegit for Web phones and handhelds, Siebel

Wireless, or the wireless access to the various SFA.com portals.

Easy Available Customer Information with Single View

There are multiple departments that have an interest in viewing the status of a customer account or opportunity. For example, the sales department wants to see the status of opportunities. The accounting department wants to see the state of invoicing and billing for the same accounts. The marketing department wants to see reports on varying degrees of success or failure of their campaigns with individual accounts.

Within each department are individuals with different roles who each have their own agendas for what passes through their crosshairs. The vice president of sales wants to see all the activity of all salespeople in his department, including their contact lists and opportunities. He also wants to get a sales pipeline report to refine his sales forecasts for the coming quarter. The account manager doesn't need that touch. He wants a national view of all of the sales activity around the accounts he owns (for example, all the sales meetings and reports related to IBM or 3Com or whatever the customer happens to be at any given moment). The sales manager wants to see opportunity progress, but not all the contact lists of each salesperson. Each salesperson wants to manage the customer accounts he owns. Each of them has the individual view that allows them to see all the data they need to — that is, have the permissions to see — but at the same time, there is a universal view of all the data available to all departments at all times.



When your application hits the Oracle performance wall, how will you scale it?

If you run web applications on a relational database, sooner or later you will run into a wall of speed and scalability limitations.

What are the first signs that the wall is getting close? Maybe your data center starts buying more expensive computers. Or maybe you are suddenly spending money on "middleware".

Before you know it, the costs related to running your relational database are skyrocketing, while your probability of success is plummeting – because relational database technology was never meant to meet the performance

demands of today's e-applications.

The best way to scale the performance wall is with Caché, the post-relational database proven to run SQL based applications up to 20 times faster than relational database technology, and to scale up to many tens of thousands of users without sacrificing performance.

Plus, Caché includes a rapid e-development environment, with simple-to-use yet powerful object technology that dramatically accelerates the creation and adaptation of sophisticated web applications.

Caché comes from InterSystems, a specialist in high-performance database systems for over twenty years – with 24x365 support, and over 3 million users worldwide. *Caché is available for Windows, OpenVMS, Linux and major Unix systems.*



World's Fastest & Most Scalable Database.

Download a fully-functional copy of Caché for free at e-DBMS.com, or call 1-800-753-2571 for a free CD.

TECHNOLOGY

HACK OF THE MONTH

The latest buffer-over-flow vulnerability in BIND highlights a history of problems with this complicated software that forms the "glue" of the Web. Computerworld security specialist Deborah Radcliff offers tips on how to protect your system. **» 50**

SECURITY JOURNAL

Jude Thaddeus conducts a disaster-scenario exercise, contemplates how to provide continuity planning — and says goodbye to Security Manager's Journal. His parting advice: It's not just coping with a disaster that counts; it's being able to keep the business running. **» 52**

HANDS ON

Computerworld looks at three utility suites that help fix — and maybe prevent — problems when Windows goes haywire. If you use one of these tools, you may be able to fix a problem before it happens and avoid the blue screen of death. **» 54**

FUTURE WATCH

A new way to transmit information is based on very familiar technology. Anoto has developed a messaging and data-recording system that connects specially designed image-scanning pens to wireless phones via Bluetooth technology. And the whole system looks like an ordinary pen and paper. **» 65**

ADVICE FROM THE LABORATORY

Lawrence Livermore National Laboratory CIO David Cooper manages an advanced technology lab, but what he has learned about data management and employee recruitment and retention could benefit any IT operation. **» 56**

QUICKSTUDY

Computers organized like your brain? That's what artificial neural networks are and why they can solve problems other computers can't. They're capable of learning and analyzing large, complex sets of data that more linear algorithms can't easily deal with. Learn more in our concise primer. **» 60**

EMERGING COMPANIES

IWork is one of the first vendors to offer manufacturers a supply-chain workflow system that can convert shop-floor documents, such as purchase orders, into XML documents and then forward them to a company's enterprise resource planning system — or to suppliers. **» 61**

EMERGING MARKETS

The Rio Grande Valley of northern New Mexico is known as the Silicon Mesa — a growing hotbed of high-tech opportunity. But the reality may not be nearly as hot as the climate. **» 64**



HAVE TRUST, BUT NOT TOO MUCH

OUTSOURCING FIREWALLS AND INTRUSION DETECTION can save your company plenty of money. But the key to successfully passing on these crucial security functions is to keep an eye on the people you're paying to protect your data. And, of course, it helps if you have good security policies in place before you look to outsourcing.

58

DEBORAH RADCLIFF/HACK OF THE MONTH

Stuck in a BIND

UNLESS YOU'VE BEEN living under a rock, you already know about the latest buffer-overflow vulnerability in the Berkeley Internet Name Domain (BIND) software, a domain name server (DNS) utility that matches Web server names to Internet Protocol addresses so people can find companies on the Web. By all accounts, BIND is the glue that holds the entire addressing scheme together, making up at least 80% of the Internet naming system.

Rightly, the CERT Coordination Center made a big deal when it announced two weeks ago that BIND Versions 4 and 8 are vulnerable to root-level compromise, traffic rerouting and all other sorts of nasty possibilities.

The following are some other disturbing facts about BIND:

- BIND is controlled by the Internet Software Consortium (ISC), a non-profit vendor group in Redwood City, Calif. Heavyweights like Sun, IBM, Hewlett-Packard, Network Associates

Hardening Your DNS

1. Run BIND in a named environment.
2. Set up a split-brain DNS configuration.
3. Update your BIND 8 configuration using built-in security options.
4. Consider running a recursive nameserver.
5. Consider running a recursive nameserver.
6. Consider running a recursive nameserver.

For more info, visit our Web site: www.computerworld.com/specials

and Compaq support it.

■ By virtue of the ubiquity of BIND, the ISC wields a lot of power.

■ Just before this latest vulnerability went public, the ISC announced preliminary plans to charge for critical BIND security documentation and alerts through subscription fees starting with resellers. This set off an outcry in the vendorworld IT community.

■ BIND has had 12 security patches in recent years.

■ This latest vulnerability is a buffer overflow, a notorious coding problem that's been well documented for a decade. Through code that's vulnerable to buffer overflow, attackers can gain root access by confusing the program with illegal input.

■ Ironically, the buffer overflow popped up in BIND code written to support a new security feature: transaction signatures.

The ISC is now asking IT managers to trust it once again and upgrade to Version 9 of BIND, which doesn't have

this buffer-overflow problem, according to CERT.

IT pros aren't buying it.

"BIND is a big, unwieldy piece of software that's been completely rewritten, but it can still have buffer overflows anywhere in the code," says Ian Poynter, president of Jerboa, a security consulting firm in Cambridge, Mass. "BIND is the biggest point of failure on the entire infrastructure of the Internet."

DNS administrators should indeed upgrade, per CERT's recommendation. But there are other things they can do to to the umbilical cord from the ISC.

First, don't allow BIND to run at root, says William Cox, an IT administrator at Thaumaturgix Inc., an IT services firm in New York. "The best

way to limit your exposure is to run the server in a 'chrooted' environment," he says. "Chroot is a specific Unix command that limits a program to only a certain portion of the system."

Second, Cox recommends breaking up DNS server farms to protect against getting knocked off the Web the way Microsoft and Yahoo were two weeks ago. He suggests keeping internal IP addresses on internal DNS servers that aren't open to Web traffic and spreading Internet-facing DNS servers around to different branch offices.

Still others are looking at Internet naming alternatives. One that's gaining popularity is named jdbdns (<http://cvg.ryu.idbdns.html>), by Daniel Bernstein, author of Qmail, a more secure form of SendMail, says Elias Levy, chief technology officer at Security-Focus.com, a San Mateo, Calif.-based Internet services company and liaison for Bugtraq security alerts.

Diagnosis: Trojan Horse

Speaking of Bugtraq and the pervasive threat posed by vulnerabilities, Bugtraq issued a utility on Feb. 1 to its 37,000 subscribers, which was supposed to determine whether machines are vulnerable to the BIND buffer overflow. The program was delivered to Bugtraq via an anonymous source. It was checked by the Bugtraq technical team, then cross-checked by Santa Clara, Calif.-based Network Associates.

Tucks out the program's binary shell was really a Trojan horse. Each time this diagnostic program was installed on a test machine, it sent denial-of-service packets to Network Associates, taking some of the security vendor's servers off the Net as long as 90 minutes.

Oh, what a tangled Web we weave. □

BRIEFS

Nishan Rolls Out Three SAN Switches

Storage networking vendor Nishan Systems Inc. announced last week three new storage-area network (SAN) switching devices for storage-area IP. San Jose-based Nishan is shipping the IPS 2000, which works with SCSI over Gigabit Ethernet, and the IPS 3000 for Fibre Channel over Gigabit Ethernet. The start-up said next month it will begin shipping the IPS 4000 for switching between a mixed environment of SCSI, Fibre Channel and native IP storage devices.

Along with Nishan's latest network management software, Convergence, the IPS will allow businesses to combine SCSI and Fibre Channel protocol with the interoperability and speed of Gigabit Ethernet to create wide-area storage networks, said Randy Fardal, Nishan's vice president of marketing. The company claims that storage over IP can deliver better service than Fibre Channel and eliminates the need for building new networks. Fardal said that from a network management view, the new technology appears to be "just another switch or router" in the SAN fabric.

The IPS 3000 has eight dual-mode Fibre Channel/Gigabit Ethernet ports, with pricing starting at about \$16,000. The IPS 2000 has four Layer 2 SCSI ports and two Gigabit Ethernet ports, with prices starting at about \$16,000. Pricing hasn't been set for the IPS 4000, which has two Gigabit Ethernet SAN ports and two SCSI/Fibre Channel Gigabit Ethernet ports.

Informix Updates High-End Data Warehousing Server

Informix Software, an independent operating company of Informix Corp. in Woburn, Mass., last week released an incremental update to its high-end data warehousing server, Informix Extended Parallel Server. According to the company, enhancements include an extended backup and restore capability that allows for the use of a mirrored copy to quickly back up the database, with virtually no downtime; MacConnect, which enables support for thousands of client connections while reducing CPU demand of the database server; and support for SUN Solaris 8.

Nuance Launches Text-to-Speech Software

Nuance Corp. in Needham, Mass., has announced a line of text-to-speech software products called Nuance Vocalizer. Users will be able to listen to a human-sounding voice read e-mail, driving directions and other items. Pricing wasn't available.

The Best Instructors and SERVICE, SERVICE, SERVICE

Northeast Training Group, Inc.'s mission is to be the premier solution provider to the productivity problems that keep Information Technology Managers awake at night.

- Over 200 Instructors
- Technical skills training-most hardware & software
- Business Systems Analyst Curriculum
- Management Training
- Soft skills specific to IT

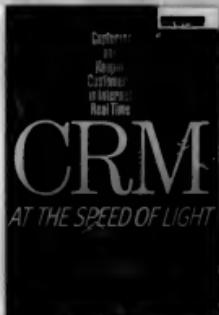
We'd like to get to know you and we'd like you to get to know us. Call or email Sue Goldberg or visit our web site.

PHONE: 617.449.5537

EMAIL: Sgoldberg@NortheastTrainingGroup.com

WEB SITE: www.NortheastTrainingGroup.com

another millisecond, another dollar.



CRM at the Speed of Light:
Capturing and Keeping
Customers in Real Time

PAUL GREENBERG
\$29.99
0-07-212782-1

"Get CRM right and your company wins in the online economy. Get it wrong and you are not even in the game."

—Peter Keen,
President, Keen Innovations and author of
Prov. com is going and *The eProcess Edge*

COMPUTERWORLD

OGIX
ACT!

Disaster Strategy: Bring Continuity From Calamity

It's not just coping with a disaster that counts; it's being able to keep the business running

A DAY of doom and gloom — how marvelous! Our new business continuity planning consultant is asking managers to derive disaster scenarios. After all, we've got to have a good idea how things might go wrong if we're to have any hope of planning what to do about them when they do.

He explained it to me in person, using what seemed to be a well-rehearsed line explaining how necessary it was, how it wasn't as much work as it sounded and how we have only two weeks to complete it.

The consultant certainly wasn't expecting me to embrace the idea enthusiastically.

It may seem strange, but this is a part of the job I enjoy. It's partly because the work involved is a bit more challenging — what IT security professional wouldn't prefer to work on a cutting-edge, distributed denial-of-service attack rather than just respond to the latest macro virus infection? But the main reason is that disaster planning helps me make some sense out of the mountain of work that's out there. For IT security, doom and gloom is strategic planning.

Of Trade-Offs and Judgment Calls

One of the long-standing principles of security is the constant trade-off between security and functionality. Most security mechanisms make computers more difficult to use, and most new functionality raises new risks. Somewhere in between there is, I hope, a happy medium.

In every security department, there's always more work required than there are resources available. Somehow, you've got to make that judgment call on every piece of work: It'll never be fully secure, but is it secure enough yet? Rather than making those calls by the seat of your pants, you stand a much better chance of achieving something

in the long run if you've got an underlying plan. And the best way to make a security plan is to work out all the things that could go wrong and be prepared to deal with them.

Simple, huh?

So here's a list that reflects my current thinking on the most likely ways that security breaches could have a big effect on my company. Are there any readers who care to suggest other scenarios that I've missed?

■ **Denial-of-service attack:** This is a common scenario, on record in many forms, from the Internet Worm in 1988 to the latest attack on Microsoft.

Technically, these types of attacks are easy to mount, but their consequences are limited to denials of service on network connections sharing a company's Internet gateway.

■ **Master MindHack:** An unknown third party could claim to be able to disrupt or destroy your internal IT systems and demand to be paid off. This is difficult to prevent because it's hard to figure out who's threatening.

Hacker blackmail is becoming more common, and it's reputed to occur much more frequently than is reported publicly.

■ **Indirect espionage:** A direct competitor could obtain details of your business plans via your IT systems and take advantage of that knowledge to out-compete you in the marketplace.

This is often reported to occur with internal collusion, which makes it all the more difficult for companies to defend against.

■ **Computer viruses decimate staff:** In this scenario, significant numbers of staffers who have been misusing IT resources — disseminating pornography or hate material, for example — are dismissed. Since these situations often involve transmitting material via e-mail, dismissing all concerned can decimate an entire department, severely affecting its ability to operate effectively.

This has been happening more and more often. A recent high-profile incident took place at London-based Royal & Sun Alliance Insurance Group PLC.

■ **Fire in the hole:** Fire, flood, explosion or some other disaster can render your central data center or computer rooms unusable. This occurs more frequently and for more bizarre reasons than you'd expect.

Anecdotal evidence tells of a disaster recovery consultant who boasted that he'd planned for every possible disaster that could strike his unnamed data center short of something falling out of the sky; the data center was hit by a low-flying aircraft shortly afterward. In another legendary incident, a consultant discounted the possibility of flood damage because the data center was half-way up a hill. The valley duly flooded and the waters rose — and stopped just before the data center. Unfortunately, the sewer system underneath it also flooded, and no member of the staff could stomach the resulting smell.

Financial or reputational damage:

The frequency of attacks that hurt companies financially or tarnish their reputations is increasing. Well-documented cases include a hack at Citibank in 1995 and the recent spate of exposures of credit card information at dot-coms such as Egghead.com Inc.

At Citibank and Egghead, small-scale, targeted security breaches exposed individual weaknesses. In the Citibank case, \$30.4 million was stolen; in the Egghead case, the credit card database was compromised.

The damage to the two companies' reputations seems to have far outstripped the financial loss. For example, Citibank recovered almost all of the stolen funds but reported a noticeable loss of business that it attributed to negative publicity.

Well, that's six risks. That's far from being everything that could go wrong, but I think they're the six most worrisome. They certainly give me something to concentrate on.

Now, the next time I have to make a judgment call, I can check whether the proposed changes make those scenarios more likely or less likely.

In fact, if I really wanted to take a strategic approach to my job, I could work out how to deal with those scenarios and work out a plan to implement security measures to prevent them.

THIS WEEK'S GLOSSARY

Business continuity planning: The process of planning to ensure a business can operate during and after circumstances that threaten its existence. It's a common term used with disaster recovery planning, which is the process of recovering a system from an unexpected, serious fault. Disaster recovery planning is generally seen as a technical subset of business continuity planning.

LINKS:

<http://Features.ind.ac.uk/links/>

The **Risks Down Under** Web site, which describes itself as a "home on risks to the public in computers and related systems," includes regular news and a discussion forum concentrating on things that go wrong with computers, from malfunctioning Japanese toilets to the space shuttle Challenger disaster.

It's an invaluable resource for anyone involved in risk management — or anyone who likes to laugh at other people's misfortunes.

A Sad Goodbye

I've been writing this journal for about eight months now, and I've decided that it's time to pass the baton to another security professional. I'd hoped to be able to write a neat wrap-up column this week that closed off all the issues I've raised: the smart cards, the antivirus problems, the legal quagmire and so on. Of course, life's not like that, and I'm still struggling with those very issues. If you want neat answers, ask a consultant!

Before I go, I'd like to thank everyone who's taken the trouble to send me e-mail or contribute to the discussion at the Security Watch forum at Computerworld.com. Your comments have been invaluable, not just because it lifts my spirits to know that other people face the same problems that I do, but also because some very knowledgeable people have taken the time to offer advice and help.

I'd like to mention all of you individually by name, but so many people have requested anonymity for themselves or their companies that I'd better not.

Ah, well, I guess we've still got a ways to go before we can all talk openly about security. ■

Editor's note: Computerworld would like to thank Jude for his contributions and insights into the day-to-day issues of security management. Look for a fresh face — and a new perspective — next week.



Security Manager's Journal

By Jude Thaddeus

Security manager, www.jude.com

Editor, Computerworld's Security Watch column

Editor, Computerworld's Security Watch forum

Editor, Computerworld's Security Watch Web site

Editor, Computerworld's Security Watch e-mail list

Editor, Computerworld's Security Watch newsgroup

Editor, Computerworld's Security Watch mailing list

Editor, Computerworld's Security Watch Web site

Editor, Computerworld's Security Watch newsgroup

Editor, Computerworld's Security Watch mailing list

Editor, Computerworld's Security Watch Web site

Editor, Computerworld's Security Watch newsgroup

Editor, Computerworld's Security Watch mailing list

Editor, Computerworld's Security Watch Web site

Editor, Computerworld's Security Watch newsgroup

Editor, Computerworld's Security Watch mailing list

Editor, Computerworld's Security Watch Web site

Editor, Computerworld's Security Watch newsgroup

Editor, Computerworld's Security Watch mailing list

Editor, Computerworld's Security Watch Web site

Editor, Computerworld's Security Watch newsgroup

Editor, Computerworld's Security Watch mailing list

Always-on

Remote access.

Always-on security.



Fix It Before It Breaks

In the days before computers, you fixed the refrigerator when the ice cream melted. Back then, the rule was 'If it ain't broke, don't fix it.' Today, we'd rather fix PCs before they freeze. By Howard Millman

CONSIDERING the number of things that can go wrong with Windows, ranging from the blue screen of death, registry errors, corrupted Virtual Device Drivers (VXD) and applications that overwrite one another's Dynamic Link Libraries (DLL), it makes sense to anticipate problems rather than just react to them.

JoLo Technologies LLC's System Mechanic 3.2, Ontrack Data International Inc.'s SystemSuite 3.0 and Symantec Corp.'s Norton SystemWorks 2001 help you do that. Each vendor offers a suite of tools to predict, prevent and fix myriad minor hardware, configuration and software problems.

While none of these suites can replace a skilled diagnosis

or is suitable for troubleshooting network emergencies such as failed routers, they are a good first line of defense. And, since they don't require that you open the machine, they're convenient and quick.

Prevention Before Care

My vote for the most versatile collection of routine preventive maintenance tools and enterprise-friendly licensing goes to Pasadena, Calif.-based JoLo's System Mechanic.

Among its 15 utilities, one of my favorites is its Windows customization tool — sort of like the Tweak UI desktop customization utility on Amphetamine — that lets you fine-tune the settings affecting appearance, security and performance. For example, it lets you control what applications and routines Windows runs when it starts, which has become harder than it used to be.

I also like JoLo's Internet Optimizer, which accelerates Internet communications by fine-tuning registry settings. I saw a 20% increase in data exchange rates after using the Internet Optimizer.

JoLo's \$300 Mobile Toolkit will especially appeal to IT administrators who maintain a large number of machines. Mobile Toolkit is a CD that can run (but doesn't install itself) on an unlimited number of machines. Changes made to a machine are permanent, unless they're modified by running the Mobile Toolkit again.

On the other hand, as good as System Mechanic is for preventive maintenance, it lacks utilities for even rudimentary crisis management. Symantec's SystemWorks and Ontrack's SystemSuite are the

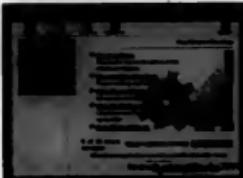
clear choices when you need to recover accidentally deleted files or unformat a hard drive or when you require advanced data recovery. For the latter, Minneapolis-based Ontrack includes EasyRecovery Lite with its suite. Symantec in Cupertino, Calif., offers a similar service through a third-party provider, PromiseMark Inc. in Fairfax, Va.

Both products also offer a broader range of utilities than System Mechanic, including antivirus protection and installation monitors, which can remove all traces of installed and downloaded programs.

Performance enhancers include program accelerators that arrange a program's DLL modules on the hard drive by

Symantec's Norton SystemWorks 2001

\$60; site licensing available
Symantec Corp.
Cupertino, Calif.
(408) 253-9600
www.symantec.com



order of execution. Although it can take several days, or even weeks, for the utility to learn an application's loading order, the effort is worth it. I achieved a 10% to 20% improvement in loading time for many programs.

SystemWorks has a slight edge over SystemSuite, not because of superior technology but because of better packaging. SystemWorks lets you run four of its utilities directly from the CD, eliminating the need to first install them.

Unlike System Mechanic, however, SystemWorks requires you to obtain a license for each machine you use it on, even if you don't install it. You'll most likely use three utilities that run from the CD — Win Doctor, DiskDoctor and UnEraser — to identify and fix common glitches. A fourth utility, WipeInfo, overwrites

deleted files so they can't be recovered.

On the other hand, SystemSuite includes PowerDesk 4, one of the best and most adaptable graphical file managers around. It's not directly related to the suite's diagnosis and repair mission, but PowerDesk absolutely runs rings around Windows Explorer. Version 4 includes a file transfer protocol downloader and a fast-loading file viewer that can display more than 200 formats.

How Good?

I ran the three suites through an identical set of defects that I created, including erroneous shortcuts, incompletely removed programs, faulty RunServices commands, and renamed or missing VXD and DLL files.

The three suites performed as expected, although it sometimes took multiple passes to catch all the errors. System Mechanic seemed to run faster than SystemWorks, which ran faster than System-

Suite, but the differences were small.

System Mechanic and SystemWorks don't offer crash protection and recovery, I consider that a benefit. SystemSuite will include this feature, which it calls CrashProtect. As hard as this utility strives to prevent data loss when Windows goes haywire, it often causes more problems than it solves. If the machine is unstable, it's better to save what data you can and reboot.

Microsoft Corp. promises that error-trapping improvements in Windows 2000 and the next release of Office will reduce delinquent digital behavior.

While it's premature to bid goodbye to the nettlesome problems that depress productivity and raise the pulse rate, this combination of error-resistant applications and easy-to-use diagnostic and repair utilities can help keep users' keys moving.

Millman is a freelance writer in Croton, N.Y. Reach him at hmillman@atglobal.net.

System Mechanic 3.2

\$60; site licensing available
\$300 buys a CD-ROM for use on an unlimited number of PCs
JoLo Technologies LLC
Pasadena, Calif.
(626) 239-4056
www.jolo.com



TECHNOLOGY FUTURE WATCH

Writing to The Future

A new way to transmit information is based on very familiar technology. By Barbara Forster

BRINGING THE PENS and paper. Get rid of those personal digital assistants (PDA). Some old technology is about to revolutionize the way we send e-mail, order candy and flowers, and update medical records.

Anoto AB, a Newton, Mass.-based subsidiary of Lund, Sweden-based C Technologies AB, has developed a messaging and data-recording system connecting specially designed image-scanning pens to cell phones via Bluetooth, a short-range, wireless data-transmission technology.

"It's easy to understand and easier to use," says Peter Schnorr, vice president of business development at Anoto. All it takes, he says, is the ability to write — plus Anoto's pen and digital paper.

The Anoto pen's main components are a digital camera, an advanced image-processing unit and a Bluetooth-enabled radio transceiver. The pen also contains an ink cartridge, so you can actually see what you're writing down.

The pen, developed by C Technologies' founder, Christopher Fahrneus, registers X and Y coordinates on another Anoto creation — paper printed with a dot pattern that lets the message be converted into a digital image.

"It doesn't matter what or how you write because only graphical representations are transmitted," says Schnorr.

Though WYSIWYG is now the presentation mode, translator applications of every imaginable variation — such

as changing handwritten text into fonts and from one alphabet to another — are inevitable, says Schnorr. Intelligent Character Recognition software from Cambridge, England-based NeatSoftware can do the job, and similar technology can be integrated into the Anoto system, he says.

Using the digital pattern is hardly a problem either. The algorithm for the dot pattern on one sheet of paper translates into an area equal to the surface of the planet Saturn.

The Bluetooth transceiver, a battery and an image processor, along with a pressure-activated digital camera, an ink cartridge and memory, are stashed inside the pen. The pen, which is activated when the cap is removed, can store as many as 50 continuous pages of solid X and Y coordinates before transmission is necessary.

"Our goal is to get a full day — 10 hours — of active, permanent writing," says Schnorr.

The camera takes digital snapshots of the pattern every 1/100 sec.; each snapshot has enough information to calculate the exact position of the pen. According to Schnorr, the pen has an accuracy tolerance of 1/1,000 in.

Transmission to fax machines, PCs, handheld computers, cell phones or PDAs occurs only when the writer addresses the message — which can go to one or more recipients — and marks the Send box at the bottom of each page with a straight line. Neither turning a page nor ripping off pieces of paper initiates transmission. With the

Send box checked, data can go directly to a PC or through a Bluetooth-enabled device to the Anoto Look-up Service via the Internet.

Anoto Net Service, Anoto's proprietary intermediary, then instructs the pen to contact a service provider's name server and send the information. The server then tells the pen where and how to send the data and in what format.

Limited transmission distance is the biggest potential downside. The pen transmits a signal for just 10 to 30 feet, which puts the writer on a short wireless tether.

One of Anoto's partners, Montblanc, the brand of pens marketed by Switzerland's Richemont AG, is developing a pen for Anoto that should stay below \$100, says Schnorr.

Paper, Paper

Digital paper products, which can be any size and shape, use ordinary black carbon-based ink and standard printing techniques. In addition, because only carbon-based black ink absorbs infrared light and makes the paper pattern visible to the pen's digital camera, noncarbon-based ink can be printed on top of the Anoto pattern without interfering with the function of the pen. "It shouldn't be any more expensive than regular paper," says Schnorr.

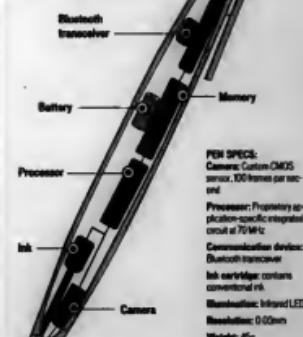
Even better, the dot pattern is replicable on any surface that allows 1,000-dpi resolution. Newsprint is a great example, but everything from a whiteboard to a refrigerator is also a candidate.

Scurrying to establish a global standard for digital paper, Anoto is entering into partnerships with as many paper manufacturers as possible. Franklin Covey Co., 3Com Corp. and The Mead Corp. are already on board.

Anoto uses public-key infra-

The Anoto Pen

The Anoto pen's chief components are a digital infrared camera, an image processor with memory and a Bluetooth wireless transceiver. It also contains an ordinary ink cartridge so the writer can see what he's writing.



Anoto Patterned Paper

The Anoto input device is a piece of ordinary paper on which a proprietary pattern has been printed in black, carbon-based ink, which absorbs the infrared light from the Anoto Pen's camera and creates the image to be transmitted.



structure and 128-bit encryption based on the Advanced Encryption Standard's Rijndael algorithm, the current U.S. government standard. For certain applications, 192- and 256-bit keys are also used.

Internally encrypted before transmission, all messages are also time-stamped, a requirement for providing digital sig-

natures. Such signatures can't be duplicated.

With the back-to-basics process and products expected to hit the market by the end of the year, comments like "I'll write you a note" will be part of our vocabulary again. ▶

Forster is a freelance writer in Boston.

Like many other young men at the time, David Cooper was enthralled by the Sputnik space capsule, which the Russians launched in 1957, when he was a high school student in Belling, Texas.

But unlike most of his peers, Cooper followed through on his dream. He went to work on the Gemini, Apollo and space shuttle missions and became one of the most influential IT managers at NASA. Now, as the CIO of Livermore, Calif.-based Lawrence Livermore National Laboratory, he drives IT policy for what is arguably the most advanced computer installation in the world.

Cooper, who holds a doctorate in physics, is an unapologetic optimist on the potential benefits of computing technology to society. He says he sees his role as providing the tools to scientists to make the world a better place to live.

For example, the Accelerated Strategic Computing Initiative (ASCI), which he oversees, will make it possible for scientists to simulate a nuclear bomb blast in 3-D, eliminating the need for live testing.

Cooper, who is also a Computerworld Premier 100 honoree, shared his experiences and observations on everything from new technology initiatives to security, data management and recruiting with Computerworld's Mark Hall.

What are the technology advances at the ASCI program at Lawrence Livermore Labs? Cray [Research Inc., the original Cray computer company] spent between \$200 million and \$300 million in research and development for each generation of new supercomputer. They would sell, at most, a few hundred of them. It was apparent that pursuing this technology path would not allow us to perform a 3-D simulation of nuclear weapons in the lifetime of a weapons scientist. As a matter of fact, we estimated that it would take up to 6,000 years running on a Cray XMP.

So we looked for another solution that was faster and hopefully less costly. The answer was to use commodity parts — the workstations you and I have on our desks — and couple them together with a high-speed switch and special software to make the entire collection of parts work at some reasonable level of efficiency. This produces a "parallel" computer that consists of thousands of processors.

Taking a sophisticated computer code, like a nuclear weapons code, and partitioning it across thousands of processors is a very difficult task. But we have a lot of very smart people working on this problem.

Parallel computing has been going on for a long time. It has lots of failures, such as Thinking Machines and Kendall Square. What has made ASCI work? First, we went to several large com-

panies that have computing as a part of their business plan and got a commitment from them. Second, and perhaps more important, we concentrated on the software. It's almost always the software, both application and operational, that make these large computers work. The development of a high-speed switch to achieve efficiency was also critical. The ASCI program made a long-term commitment to invest in the development of all aspects of these machines. Converting any sophisticated computer code ... that's running fine on a Cray-type computer to a massively parallel machine requires a large investment and an awful lot of time.

Describe the ASCI program commitment. Was it hard to sell? The ASCI program plan calls for a 10-year invest-

ment in all aspects of large parallel computers. The budget is currently about \$600 million per year. Only a quarter of the budget goes for computing platforms. About 40% goes to the application teams to develop new codes. At Livermore, we have teams of up to 30 people all working together to develop codes that work efficiently on these large systems.

A large part of the selling of the [ASCI] program was convincing computer companies to bid on machines that consisted of thousands of processors. Everyone knew that they would not be selling many 8,000-processor machines. But they would be selling thousands of similar but smaller systems, such as 32- or 64-processor machines.

You already have nearly 3 petabytes of data with the ASCI project. Have you

CIO On the Cutting Edge

WHO IS HE?

Livermore Labs CIO David Cooper manages an advanced technology lab, but what he has learned about data management and employee recruitment and retention could benefit any IT operation.



Learned anything about data management that's applicable to other CIOs?

The techniques we use for data storage, compression and analysis are readily applicable to a number of applications. Weapons designers previously used two-dimensional tables of numbers in their analysis. With terabyte-size data files, they can no longer do this, so we made a large investment in scientific visualization capability. At the lab, we have a 9-by-15-foot visualization wall that we use to display the results of simulations. I have seen weapons designers who have been designing weapons for 30 years say, "I didn't know this was going on." These visualization techniques are also applicable to numerous other scientific and engineering disciplines. The ASCI programs, by investing in scientific visualization and data analysis tech-

niques, has opened up new markets for these capabilities.

The ASCI project has massive power and cooling requirements. How do you handle the facility infrastructure around the computing infrastructure? We work with multiple vendors to get estimates of the power and cooling requirements of their future systems. If the estimates are too far apart, we go back and ask for a refinement. We do this until we are satisfied that we have a reasonable estimate of the requirements. Back-of-the-envelope calculations won't do. We need to know the details about these systems' requirements because we are building the facilities to house them right now.

How do you attract computer scientists to the lab when in nearby Silicon Valley

they can earn more and get stock options? I use the ASCI program as a recruiting tool. I say to people, "Look, here's an opportunity, maybe once in your life, to make a difference in the environment [eliminating underground nuclear test] and to work on a pre-eminent, leading-edge, defining state-of-the-art program. How many times in your career do you think you're going to be able to do this? Come work for me for three years and make a difference. Then you can go over to Silicon Valley and make your millions." I know that once they come to work at the lab that they will love the challenge and the environment and many will stay.

I believe that if we continue to develop ASCI-like computers, we will, in the next generation or two, be able to simulate the human body and de-

termine whether or not a drug taken into the human body will result in a deformed child or even result in cancer at some later stage of life.

If the automobile companies had the supercomputers 10 or 12 years ago that we have today, they would have been able to design an air bag that when deployed would be gentle on a young adult or infant.

Other applications are [accurate] weather prediction in advance for, say, 21 days, prediction of the impact of deforestation, environmental cleanup, safer and more efficient aircraft, etc.

Once you get people into the lab, how do you develop their careers? We have a variety of programs and opportunities for training available to our employees. We don't have a formal mentoring program yet, [but] we make sure that people are associated with someone in their field. The worst thing you can do is hire someone and turn them loose without any real guidance.

How do you train employees to be managers? Well, I think Livermore has not done a very good job of this. Consequently, some of the organizations, including mine, have started an Emerging Leaders program. First-line supervisors nominate people, or people can self-nominate to participate in the program. We introduce them to management and management techniques. We invite in speakers. We expose them to different parts of the lab. By having a colleague or a working relationship with someone in another organization at the laboratory, we can hopefully avoid the "steepening" that takes place in large laboratories like Livermore.

If you had to give one piece of advice to a CIO building a new data center, what would you tell him? The most important thing I could tell them is to pay strict attention to cybersecurity. I'm convinced that I could select a team and get to virtually anything connected to the Web. There are so many vulnerabilities out there. If one needs to worry about the integrity of the data, then one must worry about cybersecurity. Before one is willing to accept the risks, I strongly recommend that there be a detailed threat identification and a formal risk analysis. In my opinion, CIOs need to go out and hire a chief security officer and fund a staff to support this activity. There are too many people who simply put too much faith in firewalls. There are many levels of sophistication of firewalls and many are just capable of keeping out the "kiddie" hackers, quirkily. ♦

FIREWALLS ARE GUARD DOGS in a box, designed to resist brute-force attacks, foil hackers and generally police everything going in and out of networks. It's hard not to rely on them. But it's also easy to overestimate their importance in any enterprise security arsenal.

"Firewalls can't go it alone. 'What we do is a balancing act,'" says John Lucich, international president of the High-Tech Crime Network, a West Caldwell, N.J.-based computerized network of law enforcement agencies from 15 countries. The amount of money spent on security products must be balanced against the worth of what's being protected, and most organizations aren't Fort Knox, says Lucich.

Firewalls are part of a greater network and security infrastructure, which itself derives from a meticulous, well-documented security plan. Security experts are the guardians of that network, the kind of people who wake up at night in a cold sweat, wondering if the firewalls are blocking what they should. Their jobs require a lot of intense hours, because networks are constantly changing.

Security experts are scarce and expensive, so outsourcing provides an affordable way to benefit from

such talent. Outsourcers also configure and maintain equipment and buy in bulk, saving their customers money. Finally, outsourced firewalls are often a good step to value-added monitoring services, which are also offered by outsourcers. Outsourcing companies can not only maintain firewalls and prevent attacks on corporate networks, but they can also see where those networks are being attacked and take the necessary steps to block the attackers.

Economics of Outsourcing

Firewalls are designed to prevent unauthorized access to or from a company's network. They monitor everything that comes in or out, often at the packet, application or circuit level of the network, or by using a proxy server to disguise IP addresses.

But they're expensive. For companies that want to install one in-house, a new firewall costs \$50,000 to \$30,000 or more, depending on licensing fees and whether it's a hardware firewall (also known as a network appliance), a software firewall or, more often than not, a combination of both. Hardware firewalls are less expensive because the software version requires powerful additional servers on which to run.

To set up and run the firewall and manage security, a company needs to hire a security expert. That ex-

pert earns \$80,000 to \$100,000 per year and requires ongoing training. And more than one person is required to run around-the-clock monitoring and response. The three-year cost of a firewall and just one expert to run it would be at least \$255,000.

By contrast, it usually costs \$1,000 to \$3,000 per month plus a set-up fee (often equal to the monthly rate) to outsource a firewall. When it comes to network architecture, firewalls don't have to be next to the servers they're protecting. So even if a company has its servers located elsewhere, a vendor can care for and maintain the firewalls. What's needed is communication between the company and the outsourcer about keeping servers configured correctly and noticing changes in users who access the network.

There are immediate benefits to outsourcing: there are no steep purchase costs, the client doesn't have to install or maintain the firewall and it frees network technicians to keep the network running. Many outsourcing companies will also do some on-the-job security training for the technicians, so they're kept aware of security issues. Thus the three-year cost could be \$120,000, or less than half of the do-it-yourself option.

"Outsourcing is a way to save money — big time — and a way to get expertise quickly and deploy it quickly," says Lucich. According to The Yankee Group in Boston, start-up costs for in-house security often exceed companies' estimates, easily approaching six figures for a 500- to 1,000-node, 10- to 20-site network.

Kurt Ziegler, president of Web monitoring software company eBSure Inc. in Dallas and former vice president of product security at Computer Associates International Inc., says he opted for outsourcing a year ago because it made sense financially and didn't require hiring and training a security manager. In addition, he had to demonstrate exactly how secure his company was to clients who use his products to measure user behavior on their Web sites. Logs of users' activities are sent back to eBSure, which analyzes them and passes the results on to clients. So enormous numbers of logs have to flow in past the firewalls, while malicious data must be blocked.

The Plan

Firewalls aren't network security silver bullets, however. Without a meticulous, well-documented security plan and a good overall infrastructure, firewalls merely provide the illusion of security. As an example of what not to do, Lucich says he was recently brought in to assess the security at a \$2 billion company that had a \$2,500-per-month contract with an Internet service provider to maintain a firewall on the company's front door, which controlled everything that got in or out of the networks. But he found more than 12 backdoor vulnerabilities — things such as open ports and misconfigured routers. Anyone trying to break into a site typically goes for the unsecured parts first; hence, the firewall wasn't doing the company any good. A little detective work found that beyond the firewall, the company's security regimen was rather anemic. And, Lucich says, the service provider didn't wave any red flags to let the company know the limitations of a firewall-only approach.

Who takes the blame for such a lack of knowledge? Many companies are being led down the wrong path by vendors that claim to sell security but really sell only point products, says Lucich.

Ziegler agrees. When he accepted bids for securing his company and performing intrusion detection, he says, many vendors weren't looking for patterns — known holes in SMTP servers. "They were basically selling stopping a ping or someone coming in at the

TRUST BUT VERIFY

Companies can outsource their firewalls and intrusion detection to save money, but only if they keep an eye on it.

BY MATHEW SCHWARTZ



OUTSOURCING ADVICE

Companies can outsource part or all of their security infrastructure and monitoring to save money. But John Lucich, international president of the High-Tech Crime Network, recommends that companies proceed cautiously and advises them to take the following steps.

STARTING OUT

- Realize that managing security is about managing risk. Break-ins will happen.
- List and prioritize everything that must be secured, such as people, technology, facilities and knowledge potentially lost with employee turnover.
- Write a thorough security policy
- Find the technology to implement and enforce the policy.
- Think about outsourcing some or all security to save money. Firewalls are a good place to start.
- Consider subscribing to intrusion detection monitoring services to monitor networks and respond to attacks in real time.

WORKING WITH VENDORS

- Find vendors that ask to see the company's security policy before they make any recommendations.
- Use established security players. Beware of hardware vendors that have recently rebranded themselves as security experts or intrusion detection firms.
- Get references, no matter what. If vendors' customers are too security-conscious to talk, have them call you directly. Find out exactly how well the outsourcing has dealt with attacks against its customers.
- Get the proposal in writing.

PENETRATION TESTING

- Penetration testing is expensive. To make sure the network really is secure, do penetration testing only after the outsourcing claims to have secured it.
- Hire a third-party firm to do the initial penetration testing. Continue to get third-party penetration testing every six months.

When contracting to outsource firewalls or monitoring, the devil is in the details. Search for vendors that want to work with companies and not just sell goods, says Lucich. "When someone comes in and says they're going to secure you, and they don't ask to see your policies and procedures, kick them out because they don't have your best interests in mind," he says.

Ziegler hired an independent penetration testing company to initially test eISure's site and has the company recheck it about every six months. "I feel that's the only way I can really validate the security and that the company we're hiring is actually consistent with the skill level of the penetrators," he says.

No company can really guarantee 100% security. "Anyone who guarantees that is a fool," says Ziegler, who acknowledges that eISure has had "a couple of close ones" in the past year.

About six months ago, for instance, "some [commercial] software had gotten inside our house and was actually a Trojan horse sending data to somewhere else. And it was noticed by Riptech within four to five minutes of the time the data was first going to a host other than ours," says Ziegler. The data was being sent to a server owned by Ashburn, Va.-based UUNet Technologies Inc.; UUNet was unaware of what was going on. A phone call cleared up the problem and started an investigative trail that led to the apprehension of the hackers.

For Ziegler, the incident proved the value of having a lot of security experts watching his network. "Riptech detected [the intrusion] and, immediately, we had a professional on the other end of the phone talking us through it," he says. ♦

firewall level as if it was intrusion detection," he says.

Companies are learning. Mitch Hryckowian, senior director of security and infrastructure at Interiant Inc., an application service provider and hosting company in Purchase, N.Y., says that until recently, only 75% to 80% of customers would ask for a firewall. That has changed. "Now it's to the point where I don't know any customer that doesn't ask for a firewall," he says.

Intrusion Detection

Outsourced firewalls can also be the foundation for security insurance or intrusion detection monitoring. Just as homeowners can contract with security companies to protect their house, so, too, can companies contract with monitoring services to watch their networks — routers, switches, firewalls, network traffic and

such. "There is no one who can ever say you're 100% secure and can never get broken into," says Lucich. The goal is to manage risk and respond rapidly to minimize overall damage when break-ins do occur, he says.

Ziegler evaluated both outsourced firewall and intrusion detection providers and selected Riptech Inc. in Alexandria, Va., to handle firewalls and provide full-time monitoring to determine in real time when his network is under attack. "They were extremely price competitive with any other alternative," he says.

The benefit for Ziegler is that outsourcing provides more security muscle. "It just takes a rifle shot for someone to come in, and it's easy if you're focusing on the wrong areas," he says. Ziegler annually reassesses the decision to outsource, but so far his costs are less than having to hire a full-time security expert, he says.

Artificial Neural Networks

DEFINITION

An **artificial neural network** (ANN) is a means of processing complex data using multiple interconnected processors and computing paths. Inspired by the architecture of the human brain, ANNs are capable of learning and of analyzing large and complex sets of data that more linear algorithms can't easily deal with.

By ALEX KAY

TRADITIONAL digital computer does many tasks very well, and it does exactly what you tell it to do. Unfortunately, it can't help you when you yourself don't fully understand the problem you want solved. Even worse, standard algorithms don't deal well with noisy or incomplete data, yet in the real world, that's frequently the only kind available. One answer is to use an artificial neural network (ANN), a computing system that can learn on its own.

The first artificial neural network was invented in 1958 by psychologist Frank Rosenblatt. Called Perceptron, it was intended to model how the human brain processed visual data and learned to recognize objects. Other researchers have since used similar ANNs to study human cognition.

Eventually, someone realized that in addition to providing insights into the functionality of the human brain, ANNs could be useful tools in their own right. Their pattern-matching and learning capability

allowed them to address many problems that were difficult or impossible to solve by standard computational and statistical methods. By the late 1980s, many real-world institutes were using ANNs for a variety of purposes.

Although ANNs are often referred to simply as neural networks, that name more properly belongs to the biological brains on which they were originally modeled.

Structure

An artificial neural network operates by creating connections between many different processing elements, each analogous to a single neuron in a biological brain. These neurons may be physically constructed or simulated by a digital computer. Each neuron takes many input signals, then, based on an internal weighting system, produces a single output signal that's typically sent as input to another neuron.

The neurons are tightly interconnected and organized into different layers. The input layer receives the input, the output layer produces the final output. Usually one or more

hidden layers are sandwiched in between the two. This structure makes it impossible to predict or know the exact flow of data.

How They Learn

Artificial neural networks typically start out with randomized weights for all their neurons. This means that they don't "know" anything and must be trained to solve the particular problem for which they are intended. Broadly speaking, there are two methods for training an ANN, depending on the problem it must solve.

A self-organizing ANN (often called a Kohonen after its inventor) is exposed to large amounts of data and tends to discover patterns and relationships in that data. Researchers often use this type to analyze experimental data.

A back-propagation ANN, conversely, is trained by humans to perform specific tasks.

During the training period, the teacher evaluates whether the ANN's output is correct. If it's correct, the neural weightings that produced that output are reinforced; if the output is incorrect, those weightings responsible are diminished. This type is most often used for cognitive research and for problem-solving applications.

Implemented on a single computer, an artificial neural network is typically slower than a more traditional algorithmic solution. The ANN's parallel nature, however, allows it to be built using multiple processors, giving it a great speed advantage at very little development cost. The parallel architecture also allows ANNs to process very large amounts of data very efficiently. When dealing with large, continuous streams of information, such as speech recognition or machine sensor data, ANNs can operate considerably faster than their linear counterparts.

Artificial neural networks have proved useful in a variety of real-world applications that deal with complex, often incomplete data. The first of these were in visual pattern recognition and speech recognition. In addition, recent programs for text-to-speech have utilized ANNs. Many handwriting analysis programs (such as those used in popular PDAs) are powered by ANNs.

Automated and robotic factories are now being monitored by ANNs that control machinery, adjust temperature settings, diagnose malfunctions and more. These ANNs can augment or replace skilled labor, making it possible for fewer people to do more work.

Economic Uses

The economic uses of ANNs may be the most exciting.

Large financial institutions have used ANNs to improve performance in such areas as bond rating, credit scoring, target marketing and evaluating loan applications. These systems are typically only a few percentage points more accurate than their predecessors, but because of the amounts of money involved, they are very profitable. ANNs are now used to analyze credit card transactions to detect likely instances of fraud.

ANNs are used to discover other kinds of crime, too. Bomb detectors in many U.S. airports use ANNs to analyze airborne trace elements to sense the presence of explosive chemicals. **OUTPUT** And the personnel office of the Chicago Police Department uses ANNs to try to root out corruption among police officers. ♦

Hierarchical Neural Network

This is one possible way to organize the processes in a neural net. In this hierarchical, each processor sends its output to all the processors on the next level. One consequence of this is that there's no way to determine the actual path taken by data to produce the final output.

INPUTS



Kay is a freelance writer in Dorchester, Mass. Reach him at Alexx@world.std.com.

Workflow Tool Puts Shop Floor Online

iWork software connects manufacturing devices with back-end ERP systems

BY ROBERT L. SCHRIER

IMPLEMENTING A company-wide enterprise resource planning (ERP) system is an expensive proposition. To get the best return on investment, companies need to use their ERP systems not only to plan production, but also to track what's actually happening on the shop floor.

That's the idea behind iWork Software LLC's Work Business Integration Suite, which automatically converts transactions within a manufacturing supply chain (such as purchase orders, bills of lading or credit checks) into XML documents that can be transmitted from the shop floor to a company's ERP system — or to its trading partners.

"Our systems bring information from the shop floor to the planet," claims Harry Falk, co-founder, president and CEO of the Greensboro, N.C.-based company.

That claim has yet to be fully tested: So far, early customers are doing limited implementations of the newly released suite and haven't yet fully tested the suite's scalability or integration with multiple third-party applications.

Still, iWork is among the first to market with a workflow integration tool aimed specifically at the manufacturing industry.

"It's probably shortened the time frame [of linking an existing labor-tracking application to its ERP system] and lowered the cost by 30% to 50%," says Jack O'Connor, director of planning and technology at Champion Industries Inc., a maker of commercial dishwashing equipment in Huntington, W. Va.

iWork Software has its roots in professional services company Falk Integrated Technologies Inc., also in Greensboro, which launched the com-

pany in 1997 to focus on building software links from shop-floor systems to ERP software.

iWork Software first developed dCServe, a software tool for automatically collecting and managing data from several different makes and models of shop-floor devices that

also had the capability to go to other host applications," says Chief Technology Officer Ken Hamlins.

Several customers asked iWork to extend dCServe to link shop-floor systems to support other applications, such as those that track inventory in warehouses. In response, the company released its iWork product in October.

Revenue flattened as the company's focus shifted from



"OUR SYSTEMS BRING information from the shop floor to the planet," says Harry Falk, president and CEO of iWork Software.

iWork Software LLC

Location: 7900 Research Center Drive, Greensboro, N.C. 27401

Telephone: (336) 652-0455

Web: www.iworksoftware.com

Niche: For manufacturers

Why it's worth watching: Among the first vendors to ship a workflow integration product aimed at the manufacturing industry.

Company officers:

- Michael A. Falk, chairman of the board, co-founder
- Harry S. Falk, president and CEO, co-founder
- Ken Hamlins, chief technology officer

Headquarters:

- 1997: Company launched dCServe released
- October 2000: iWork Business Integration Suite released

Employees/growth: 75; 10% to

30% growth projected this year

Burns measure: \$12 million, 50% generated from operations, the rest from in-house sales, iWork's officers say the company is profitable.

Productivity/tying: Total investment, including software and services, ranges from \$200,000 to \$300,000 per installation, plus ongoing software maintenance fees.

Customers: Champion Industries Inc., Burlington Chemical Co., E&B Welding & Cutting Products, Carter-Teed Corp., Arteright Inc.

Partners: IBM, Lotus Development Corp., Cisco Systems Inc., Vignette Corp., Intermet, Technicolor Corp.

Reputation for IT:

- Work faces competition from much larger companies.
- Expect to pay extra for custom adapters between iWork and legacy applications.

services to developing the iWork software, says Falk. The firm is profitable, but sales stayed almost flat at \$42 million in 1999 with only "modest growth" for the past fiscal year, which ended October 31. However, Falk says he expects sales to rise at least 50% this year.

Pay as You Go

iWork gives away the components of the iWork suite, which allow customers to design and develop their integration environments, and then charges for the code that provides the actual connectivity to plant-floor devices and business applications. It also provides the services to set everything up and charges ongoing software maintenance fees.

"We're doing a lot of proof-of-concept, \$200,000 to \$300,000 deals," says Falk, which if successful "promise to be multimillion-dollar transactions." He says customers appreciate the ability to build their systems gradually without having to cut multimillion-dollar checks up front.

Customers also say they like iWork's ease of use. David McKnight, director of strategic business development at Burlington Chemical Co. in Burlington, N.C., praised the point-and-click simplicity of iWork's Workflow Modeler, which customers use to design the documents the finished system will produce. For in-house staff, a week or two of training in iWork "is plenty, if you have an understanding of Java and XML," he says.

The biggest obstacles to implementing iWork, say both McKnight and O'Connor, are nontechnical issues such as the need to carefully plan and track complex integration projects and convincing nervous business partners to grant access to their corporate systems.

Another plus for iWork is its experience and reputation in the manufacturing industry. O'Connor says Champion has been outsourcing much of its IT infrastructure to iWork since its previous incarnation as a services firm. "They're a solid company and they're experienced in delivering system solutions," he says.

Schriener is a freelance writer in Boylston, Mass.

the buzz
STATE OF
THE MARKET

Big Market, Big Competitors

Sales of manufacturing-specific applications will grow from \$6.5 billion this year to \$10.4 billion in 2004, according to Framingham, Mass.-based IDC. As for integration tools such as iWork's, which integrate shop-floor devices with ERP systems, "my feeling is that nearly every manufacturing company over \$100 million needs this ... and could afford it," based on the business streamlining benefits," says Julie Fraser, an analyst at Industry Directions Inc., a consulting and analysis firm in Newtonbury, Mass.

The size of the market is the good news, says Fraser, because iWork and its three main competitors "all have plenty of potential and room to grow." iWork's "ease of implementation and the comprehensiveness of its capabilities" are its strong points, she says. The bad news, says Fraser, is that it must compete with well-established vendors that also have "fairly comprehensive" tool sets. The top contenders include:

SeeBeyond Technology Corp.

Monrovia, Calif.
www.seebeyond.com

Formerly Software Technologies Corp., SeeBeyond's eXchange Business Integration Suite includes the suite of integration platform, used for integrating applications and middleware within a company, and the eXchange Integrator, an application for automating business processes and managing trading relationships through exchanges or networks.

Viewlocity Inc.

Alanta
www.viewlocity.com

Spun off from Sunbury, Sweden-based service provider Frontex AB, Viewlocity's flagship product is AMTrix, which uses XML connections to link discrete applications and data sources. Like iWork, it provides both an integration hub and tools to model the connections needed among business partners.

Mercator Software Inc.

Wilton, Conn.
www.mercator.com

Mercator's Commerce Broker software can design, implement and manage interfaces for manufacturing and other business-to-business transactions. It includes the ability to define and manage partner relationships, as well as archive and audit transactions.

—Robert L. Schriener

Windows 2000 ADVANTAGE

The Web Magazine for IT Leaders Implementing Windows 2000 and Windows NT with Compaq Services and Solutions

Online this week:

POINT OF VIEW

Compaq Integrates 2000 delivers enterprise application integration
Integrating enterprise applications recently got a boost with Compaq's Integration 2000. The initiative helps solve the largest, most difficult business integration problems, www.compaq.com/windows2000/integration/01-11-00_integration.asp

TECH EDGE

Understanding Commerce Server 2000
Released for general availability, Microsoft Commerce Server 2000 provides the foundation for the development and deployment of e-commerce Web sites, www.windows2000advantage.com/tech_edge/01-22-01_commerce_2000.asp

Q & A

Abberdeen Group says Windows 2000 ready for reliability prime time
Tom Mentec, research director at the Aberdeen Group, finds that dot-com and enterprise computing users increasingly choose Microsoft Windows 2000 over Windows 98 and NT. www.windows2000advantage.com/qa/01-23-01_aberdeen_reliability.asp

COLUMNS

Avoid the ostrich approach to security
Amazingly, many companies still take an ostrich-like approach to security because they don't believe a security disaster will ever happen to them. Columnist Oliver Thivierge has the details, www.windows2000advantage.com/columns/01-08-01_security.asp

CASE STUDIES

Starbucks, Starbucks Meeting Commerce Server Microsoft's Commerce Server 2000 for the first time through an extended beta testing deal with top-tier companies. Two Starbucks locations and Starbucks used the system to sell Starbucks products online. www.windows2000advantage.com/case_studies/01-22-01_commerce.asp

MOMENTUM SERIES >

Windows 2000 enhances storage management, disaster recovery

Microsoft Windows 2000 features that fine-tune how information is stored, distributed, backed up and recovered in an enterprise-class data center are making life easier for users such as Ryan Cloyd of EDS.

For the full story, visit: www.windows2000advantage.com/momentum/02-05-01_disk_disaster.asp

NEWS >

Report says Windows 2000 servers featuring 99.964 uptime

Following up on an earlier report that said dot-com users were responding favorably to Microsoft Windows 2000, the Aberdeen Group has issued a new report in which users are certifying high reliability and scalability with their Windows 2000 systems.

For the full story, visit: www.windows2000advantage.com/news/01-29-01_aberdeen.asp

MOMENTUM SERIES >

Rapid Economic Justification methodology paves way for Windows 2000

IT executives hear a lot these days about total cost of ownership, especially as their organizations expand into the realm of global e-commerce. For some companies, becoming established as a solid Internet presence in addition to being a traditional brick-and-mortar business means revamping their technology infrastructures. For others it means making measured investments in additional hardware and software to supplement legacy systems. Either way, organizations must be prepared to justify the cost of expenditures with a solid return on investment strategy that clearly illustrates potential benefits.

For the full story, visit: www.windows2000advantage.com/momentum/01-15-01_rej.asp

www.Windows2000Advantage.com/300

MOMENTUM SERIES

Dedicated appliance servers provide targeted functionality, enable Internet infrastructures

Appliance servers are preloaded, application-specific machines dedicated to specific tasks. Dedicated servers are not new, of course—they've been around for at least 10 years, traditionally as file and print servers. But what differentiates this category is that the vendor optimizes the software and the hardware for the particular task at hand and delivers it to the user ready to go.

Previously, customers had to retrofit themselves—they would take a general server and add hardware and software to turn it into, for example, a print server. Or they'd pay a third-party to do it for them.

Some have called this type of hardware a thin server. But Framingham, Mass.-based International Data Corp. research manager Mark Melenovsky cautions against that term because it can be confused with a rack-mounted server that's less than two inches tall—in other words, something that's physically thin as opposed to something that's virtually thin. So he prefers appliance server as the name for the application-specific class of machine.

According to Charles Vellonrat, marketing manager for Compaq's TaskSmart N-Series Servers, "It's a turnkey solution that does one task with great performance. It's ready to manage and easy to set up right out of the box."

Appliance servers come in all shapes and sizes, from a low-end Web server, selling for about \$1,000, to massive processors for load balancing that may sell for up to \$30,000.

IDC predicts that revenue from appliance servers will grow from \$1.4 billion in 2000 to \$10.7 billion in 2004. (These figures do not include specialized devices used for network-attached storage (NAS), which could be considered appliance servers.) In comparison, the overall server market will grow from \$7.3 billion in 2000 to \$10.67 billion in 2004, according to IDC.

For the full story, visit: www.windows2000advantage.com/momentum/02-05-01_appliance.asp

QUOTE OF THE WEEK >

"You can take Commerce Server 2000 out of the box, slap a coat of paint on its pre-built features and make it do what you need to do."

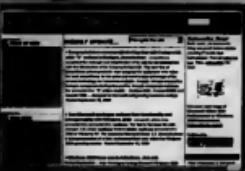
— Rob Reed
manager of Web IT
Starbucks Direct

What is Windows 2000 Advantage?

The mission of Windows 2000 Advantage is to become your primary source of timely, useful information for planning and implementing Microsoft Windows 2000 on Compaq solutions and services.

Windows 2000 Advantage is a Web-only magazine because that lets us bring you, the IT leader, great stories that apply to your day-to-day work. We'll keep you up to date with a weekly e-mail alert so you don't miss a thing.

Windows 2000 Advantage is underwritten by Microsoft and Compaq. Its charter is to address the issues that most concern IT managers charged with keeping their companies on top of the latest and best solutions Microsoft and Compaq have to offer. Toward that goal, we offer a wide range of stories including case studies, columns and news to provide you with information you can't find anywhere else.



www.windows2000advantage.com/300

CLICK POLL >

IT shop

Cast your vote in
www.windows2000advantage.com/300

Windows
2000
Solutions

[in a major newsworthy] that showed Albuquerque in the top 10 of hiring IT," says Jerry Esch, enterprise information systems manager at the Sandia National Laboratory in Albuquerque. "We were mentioned ahead of lots of bigger cities. I looked at that and was saying, 'I'm not sure where they got this from.' Yes, Bill Gates got his start here, but Bill Gates is gone." (Microsoft Corp. started in Albuquerque.)

The area can legitimately portray itself as a leading technology center.

The Department of Energy and the Department of Defense perform much of their work at the Los Alamos National Laboratory and at Sandia. Sandia spins off many companies that commercialize the results of its research. Intel Corp. and Phillips Electronics NV have semiconductor manufacturing facilities in the area. And Honeywell International Inc. and The BFGoodrich Co. together employ almost 2,000 local residents in the aerospace industry.

Unfortunately, the presence of high-tech organizations doesn't always mean there are a lot of high-technology job opportunities. For example, Honeywell has 1,500 employees, but only 70 work in IT, and only eight jobs are open.

"New Mexico by far always had a very slim technical market," says Thelma Rey, human resources director at McBride and Associates Inc. in Albuquerque. "My experience has been that when folks become technically competent, they find jobs outside the state."

Part of the explanation is probably the pay, which tends to be low compared with many other areas. "Anyone who does move here will take a pay cut," says John Ortiz, vice president of business development at Bency and Associates LLC, a recruiting firm in Albuquerque. He estimates that salaries are 10% to 45% lower than in other areas of the country.

"People don't usually move here for the job opportunities; they move here for the environment," says Ortiz.

"I think [business] is more relaxed and a little bit less driven," says Crabtree, who has worked in both Denver and Houston.

"What's confusing to me, there was an article last year

executive director of the New Mexico Information Technology Group, the region's IT market is still in its infancy. That means there is little centralized communication, so those who need work may never hear about positions. Making this infancy more difficult is the nature of the technology atmosphere. Spin-offs from the labs tend toward leading-edge applications, such as cluster supercomputing or advanced modeling and simulation. That means state-of-the-art technology and software design, so designers and developers should have an opportunity to hone their skills — assuming that they're able to find jobs. ■

Sherman is a freelance writer in Marshfield, Mass.

AT A GLANCE

The Market

The Silicon Mesa includes the middle Rio Grande Valley, near the cities of Albuquerque, Santa Fe and Los Alamos.

Top IT jobs: Programmer/analysts, experienced network administrators

Top IT skills: Oracle, distributed systems, SQL Server

Major industries: Semiconductor, electronics, government

Salaries: Entry-level C programmer, \$33,000; staff analyst/programmer, \$50,000 to \$55,000; senior staff analyst/programmer, \$75,000 to \$80,000; Oracle database administrator, \$50,000; senior administrator/manager, others, \$90,000 to \$100,000

Corporate culture: Tend to be more relaxed and less hectic than those in major IT centers

The recruiter's view: The Silicon Mesa is most hospitable to those who have extensive IT backgrounds, according to John Ortiz, vice president of business development at Bency and Associates.

"The people who are actually getting jobs have a variety of skills [and] a variety of experience," says Ortiz. "There's a little bit of room for them with no experience. Such employees are best off getting early experience in state or local government, rather than in laboratories or in private industry."

Because the job market is so tight, employers can often afford to be picky, as the winning edge for companies to having experience in the appropriate vertical industry. A job search can last a couple of weeks for someone with a heavy Oracle database background or up to six months. "For someone who has a [programmatic] language and hasn't had five years' experience," Ortiz says, "you'd have to be thinking of relocating to New Mexico, then on a pay cut of as much as 45% — without a low cost of living to balance it." — Erik Sherman

Silicon Mesa

The Rio Grande Valley of northern New Mexico has billed itself as one of the hotbeds of high tech. But a closer look finds that the job market may not be nearly as hot as the weather outside. By Erik Sherman

A GREAT CLIMATE and a relaxed atmosphere might sound wonderful to someone in an IT pressure cooker too long. And it would sound even more wonderful if the region around Albuquerque, N.M., could offer plentiful jobs in addition to all of that. After all, the area bills itself as the Silicon Mesa, an up-and-coming high-tech job mecca. And at first glance, things seem promising here.

It took Rick Crabtree, CIO at St. Joseph Healthcare in Albuquerque, three months to find his most recent new employee because experienced help is scarce.

"In the past, we might have 10 résumés on the shelf — or 100, depending on what we were looking for," says Crab-

tree. "Now, we don't have any." Look a little deeper, though, and you might start to wonder if the Silicon Mesa name fits. According to Crabtree, employees in the area are "string tight" and not changing jobs, leaving few openings. Recent graduates or people who are switching careers with little IT experience may not find the market as welcoming as perceptions would have it.

It has recently become common for geographic regions to invent marketing names for themselves — most often including words like silicon, digital or Internet — to attract both employers and personnel.

Silicon Alley in Manhattan is a good example.

IT professionals should take the literal note of the name Silicon Mesa, which refers to the region in northern New Mexico bounded by Albuquerque, Los Alamos and Santa Fe. The job market during the next year or two is likely to be what the name implies: It will largely be built on silicon, and a graph representing opportunities in the area would be flat, with steep drops at the edges.

"What's confusing to me, there was an article last year

When
people ask
what you do,
tell them
to turn on
the six o'clock
news.

BOEING



You live in a big city and work on a small network. How about switching that around?

Not a bad trade-off when you consider you'll be working on one of the country's largest privately owned computer networks. It also happens to be one of Computerworld's "100 Best Places to Work" and ranked #15 on the Fortune 500 company list. Add to that an easy-going lifestyle, a family-friendly benefits package, a diverse workplace and you'll kick yourself for not having made the switch years ago.

Contact State Farm Human Resources at joboppo.corpsouth@statefarm.com for information about current positions.

Or visit our website at statefarm.com™



Get there with State Farm.

State Farm Insurance Companies • Home Office: Bloomington, Ill.
An Equal Opportunity Employer

Talent is the fuel of the new economy.

IT careers and IT careers.com can put your message in front of 2/3 of all US IT professionals. If you want to make hires, make your way into our pages.

Fill up with IT careers.

Call Janis Crowley at
1-800-762-2977

Software Engineers

IBES ASSOCIATES, the creator of Lotus Notes, Lotus Domino and Lotus Domino Notes, seeks a Software Engineer to join our Engineering group at various levels of responsibility at our location in Westboro, MA.

All positions require a BS degree (or equivalent) and some require a Masters degree) in Computer Science, Mathematics or a related field, together with at least 4 to 5 years relevant experience.

- Software Engineers (QualiTrace Internals)
- Software Engineers (Notes Client Editor)
- Software Engineers (LotusNotes Product Design)
- Software Engineers
- Software Project Managers (Domino Web Engine)
- Numerous Other Software Positions at All Levels
- Principals, Senior and Entry Level

Competitive benefits and starting salaries from \$72,000-\$110,000, commensurate with experience. Specific responsibilities accompany this exciting high-tech environment of growth opportunity.

Please mail or fax resume, indicating Reference Code AMB001, to: Ms. Anne Marie E. Kenny, Perry Human Resources, Five Technology Park Drive, Westboro, MA 01581; Fax: 508/865-2100; E-mail: amb001@perryhrc.com

IBS Associates, a subsidiary of Lotus? IBM is an Equal Opportunity Employer

HELP WANTED

Inbound Product Marketing Manager - Murray UT

Dates:

Manage all aspects of the product life cycle including extensive market research, competitive analysis, product positioning, product development, liaison with Engineering, delivery, defining market requirements, driving the long term product roadmap. Work with Sales, Marketing, Manufacturing, Engineering, and R&D to develop and maintain a timely and quality product for the Internet Infrastructure market. Organize competitive analysis briefs, case studies, white papers, and other materials to support sales and marketing efforts to give customers product and product feature information. Also responsible for finding and identifying sales channels for emerging products. Develop and maintain a strong network of contacts and direction to customers, internal organization, channel partners, peers and the industry at large. Proactively developing the materials in order to keep the product competitive. Minimum of 5 years experience with a BS in a technical field, excellent technical background, good project management skills, hands on experience with computer networks, strong presentation and writing skills, and previous work with public speaking and be able to present ideas well. Relocation Salary \$60K/year

Send resume to: Dept. of Workforce Services, ATTN: Pat Pendleton, Job Center 800-616-1667, 140 East 300 South, SLC, UT 84111

the place where your fellow readers

are getting a jump

on even more of
the world's best jobs.

Stop in a visit.

See for yourself.

THE WORLD OF WORK IS CHANGING EVERY WEEK.



LUCKILY, WE ARE TOO!

For the most up to date opportunities
and coverage, stay tuned in with us.

IT CAREERS

where the best get better

1-800-762-2977

Computerworld • February 12, 2001

IT Careers with the Internet

There's no part of the information technology world that isn't linked to the Internet. It weaves, winds and infiltrates every element of software development, architecture and systems being developed for the new e-economy. There are, however, some businesses whose specialty is the Internet itself — how it works and what its next offspring will be. Here's a look at some of those companies.

CSX Technology — Jacksonville, FL

Most people know CSX as the railroad giant. CSX Technology is the information technology shop that supports the transportation leader, from providing data center management to diagnostic systems for the repair of railcars and locomotives. The miles covered by the railroad between customer and success depends to large degree on the Internet.

Jack Morgan, assistant vice president for human resources, says CSX Technology has 560 employees. "Our web development projects are partnerships between customers, the railroad business and CSX Technology," says Morgan. "We're developing products that help with the exchange of data and information. These products include new methods of communicating to our customers through shipment tracking, price management and portal design to facilitate supply chain management and customer interaction."

"As we grow in the internet/intranet area, we need employees with great attitudes, experience and an aptitude for mid-tier technologies ranging from PL/SQL to Java developers," says Morgan. "We use a two-track system that measures not just technical competencies but core competencies that include accountability, action orientation, integrity/intrust, teamwork, customer-focus and technical agility. We need people who can deal with change, who have business acumen and project management skills."

"We can offer a variety of leading-edge technology career options," Morgan adds. "Every CSX employee receives training annually. In 2000 we finished the year with an average of 34 hours per employee. We're a dynamic company that is in a growth industry. When you add to these factors the people who work here, it makes for a great place. Here you'll find a warm, friendly, fun environment where we work hard."

Genity — Cambridge, MA

Long before there was an Internet, there was ARPANet. The brainchild of technologists at MIT and Genity, then known as BBN, ARPANet exploded in the last decade as the Internet, changing the way companies work and the way that the world economy takes shape.

BBN was later acquired by GTE and then was spun off as Genity, when GTE and Bell Atlantic formed Verizon. It was the first Tier 1 Internet backbone company in the world, according to Carolyn Churcher, Genity's director of employment. Today the company is providing services to some of the best-known names in the Internet world — Yahoo!, Earthlink and AOL among them. As part of its latest innovation, Genity rolled out a new product known as Black Rocket. "This is a turn-key networking solution that can be assembled in just 10 days for a customer," says Churcher.

In addition to bringing the speed of the Internet to the development of a network, Genity continues to focus on the grandchild of ARPANet — the next generation of the Internet. "We'll be hiring 1,000 people in 2001," says Churcher. "In developing a new internet or extending the capability of today's Internet, we need systems administrators, network engineers and software engineers."

Genity has offices in the Northeast, the West Coast and data centers throughout the United States, offering individuals a variety of places to work. Genity uses UNIX and NT skills, as well as standard software and network technological skills. "We look for individuals with this technical expertise, as well as those who have the ability to grow and evolve with this business," says Churcher. "We're no newcomer to the Internet market, and we intend to maintain our position at the top of this business."

Net Quotient — New York, NY

Customers believe in Net Quotient's ability to provide a back-end solution for Internet capability. Similarly, Net Quotient's leaders believe in the company's employees. It's one of the primary reasons employees give for coming and staying at the company, which provides technology consulting to Global 2500 companies.

John Samanezgo, recruiting manager, says that the company looks for highly experienced individuals who have a single interest — creating the best web-enablement backbone possible for clients. "We go to our clients as an experienced team with a solution for their technology needs," says Samanezgo. "This is a place where you can

be a big fish in a small, highly talented pool of experts, where every opinion counts."

Net Quotient began as the technology-consulting arm of recruiting firm PenCom. Today, Net Quotient is owned by Formula Group, a corporation of more than a dozen Internet-based companies, including Applicon, Net Quotient's parent company.

Net Quotient is hiring senior level web architects and technical project managers. Samanezgo says the company also is hiring sales and business development people with a talent for creating and maintaining relationships with clients of all sizes.

"Candidates want to work here for the people who interview them and who already work here," Samanezgo adds. "We are always hiring, continuously searching for talented people. We create positions for people who are right for us." In addition to the NYC office in Silicon Alley, Net Quotient has offices in Austin and Dallas, and London. Plans include opening offices on the West Coast and on mainland Europe.

Worldcom — Atlanta, GA

Worldcom employs more than 77,000 people worldwide. And each of them can quote the future for Worldcom — Generation 0. The data generation — how it works, how it thinks and how it operates is the focus of this communications giant that began as a local and long-distance telecommunications provider.

"We've evolved into much more than a phone company," explains John Adams, regional technical recruiting manager for the East Coast. "Our direction today is toward more web hosting and the exchange of data and information. In whatever form. We provide web server co-location and support administration and monitoring of communication systems."

"The technological challenges is fantastic," says Adams. "Our size creates a lot of opportunity for those who join Worldcom. Here you'll be able to see the global impact of what your technology creates. We will be doing a lot more to continue to be a pioneer in this business. Here you'll work with very talented people, you'll be encouraged to push against the status quo, and that means learning and growing for you as an individual."

IT careers

For more job opportunities with Internet firms, turn to the pages of

• If you'd like to take part in an opening interview, contact John Crowley, 403.317.8887 or www.403.com

• Printed by Condé Nast Publications

• Designed by Michaela Bright Solutions

• Images: www.403.com

FRANK HAYES/FRANKLY SPEAKING

Out With the Old

DEAR JEFF SHEAHAN: Thanks for taking the time to write to Computerworld about my column on Egghead.com's security problems [Frankly Speaking, Jan. 14]. As CEO of Egghead.com, you must have been busy working to win back the trust and support of your customers while I was writing the column, which I guess is why your PR people refused to let me talk with you.

I notice that in your letter [News Opinion, Feb. 5], you don't repeat your previous claim that no customer data was compromised in the Egghead.com break-in. That's a wise choice, since some of your customers whose credit card numbers were stolen believe they couldn't have come from anywhere besides Egghead.com.

At least, that's what they've written to tell me. I'm also happy to hear you're looking into every customer claim of possible fraud. Lots of your customers say they feel like they've been ignored. Some say they heard about the break-in only from news accounts or their credit card companies, even though Egghead.com has their e-mail addresses on file.

Your customers would rather hear the news from you, Mr. Sheahan. They're your allies, not your enemies. They want to be able to trust you. Even finding out about the security breach in a formal letter would have been better than learning about it from the newspaper — or while trying to use a credit card in a restaurant.

And I'm very glad to know you're taking additional steps to secure your systems. When it comes to customer data, there's no such thing as too much security. So in the interests of better security, let me repeat one recommendation I made in that column last month.

Get those old customer accounts — the ones that haven't been active for a year or more — off your live systems.

Purge them. Roll them off. Filter them out. They're a security risk, a disaster waiting to happen.

Your regular customers expect you to have their information online. That's what personalization is all about. But customers who haven't recently bought anything from Egghead.com don't expect you to have that information on your live systems. Many of them don't want it on your live systems.

Sure, it's a lot more convenient to treat all

customer information the same way — in a single database, instantly accessible to customers and customer service and accounting and everyone else in your organization.

It's convenient, yes. But it's not as safe.

Besides, keeping old data online makes no sense in terms of personalization. That is why you're keeping that data online, right? Personalization is about customer preferences. If you haven't had contact with a customer in a year or more, why assume his preferences are still the same?

Customers move. Their e-mail addresses change. They decide to use different credit cards. Most important, their product needs and preferences shift. You can't do personalization with year-old data. That's ancient history in this business.

Which means that old customer information isn't safe and it isn't reliable for personalization. It shouldn't be on your live systems.

Yes, you have to keep those transactions on file. The IRS, the SEC or your accountants may need to see those records, and you're legally required to preserve them. But not connected to the Internet. You don't even need them in live databases — they're perfectly safe in off-line storage, sitting in some secure records vault where crackers and other bad guys can't get at them.

So get them off your live systems. That won't solve all your security problems — or your issues of customer trust.

But it's a good start. ▶

Hayes, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

ICE STORMS blow through Midwest town, taking out power for up to three days. Manager instructs Web developer: pilot fish that need live storms off. He should add a section to our Web site, telling people how much longer their power will be off. "I've created the system," the fish reports. "But anyone who needs the information won't have any power to turn their computer on!"

MaintenANCE programmer pilot fish gets a 3 a.m. call from a user with a problem: System won't print, and "a big red light is glowing." Disk Failure? User says, "It's the printer." Pilot fish says, "That's a hardware problem. Say fish — you should call our hardware support guy. Can you come fix it anyway?" asks user. "He likes me better than the hardware guy."

Y2K: STILL COUNTING The systems are all upgraded to four digits, but this user's getting errors. Are you sure you typed in four digits? IT pilot fish asks. Yes, user says. "I put in four digits, 0001." Fishes dilemma: "Do we change the system to keep data back that it didn't help much. Fish arrives on-site to help. He opens the printer cover and removes the cartridge to give it a shake. Oh, says user. "I didn't know you could do that out. I've been shaking the printer."

for or just try and fix the user?"

PILOT FISH GETS CAUGHT in a wave of layoffs, and, for security, the company changes passwords to its Internet-accessible site. But no one remembers to shut off the fish's company e-mail account. "Of course, they broadcast the new passwords to all employees' Internet-accessible e-mail accounts," says the fish. "Including mine."

WHAT'S LEARNED? User complains his laser printer output is too light to read easily. For now, says IT support fish, just shake the toner container to redistribute toner; he'll have to order a fresh one. User says, "I reports back that it didn't help much. Fish arrives on-site to help. He opens the printer cover and removes the cartridge to give it a shake. Oh, says user. "I didn't know you could do that out. I've been shaking the printer."

Shaka things up with your own true tale of IT life: computerworld.com/shaka. You get a snappy Shark short if your story sounds print — or if it shows up in the daily feed on the Web at computerworld.com/shaka.

The 5th Wave



It appears a server in Atlanta is about to go down, there's printer backup in Baltimore and an accountant in Chicago is about to make level 3 of the game, "Tomb Raider."

Illustration by Michael Hsu



Local Internet

We're lighting that campfire, Don, by building the new, high-performance Internet – the Local Internet. Bringing the speed, reliability and capacity of the Optical Internet closer to business networks. By not only shattering the bandwidth bottleneck, but also with an industry-leading portfolio of Local Internet solutions that offers next-generation capabilities, processing power and intelligence. Enabling service providers to deliver and manage – whether wired or wireless – profitable new eBusiness applications and services. So come together, right now with Nortel Networks™. And make the Internet whatever you want it to be. nortelnetworks.com

NORTEL
NETWORKS™

© 2000 Nortel Networks. The Nortel Networks logo and the Unisphere are trademarks of Nortel Networks. "What do you want the Internet to be?" is a service mark of Nortel Networks. All rights reserved.



They can be everywhere—right out of your mobile phone or tablet. The desktop—and they're certified on more than 100 mobile devices and platforms—provides a consistent, fast, and easy way to get more done. To learn more about Symantec Enterprise Security, visit www.symantec.com/enterprise.